# Thu. Sep 12, 2024

Poster presentation | S1: Dynamics of igneous processes (Special Session)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## S1: Dynamics of igneous processes (Special Session)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S1-P-01] Oxidation states of HIMU-type ocean island basalts: Insights from μ-XANES analysis of quenched glasses and melt inclusions

*Yuuki HAGIWARA[1], Hidemi Ishibashi[2], Takeshi Hanyu[1] (1. Japan Agency for Marine-Earth Science and Technology, 2. Shizuoka Univ.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S1-P-02] The composition and pressure of the fluid in crystal mush estimated from cordierite in tonalitic polycrystalline volcanic ejecta

*Shumpei YOSHIMURA[1] (1. Hokkaido University)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S1-P-03] Geochemical evolution of Izu-Oshima volcano: Constraints from analysis of melt inclusions in a submarine core

*Morihisa HAMADA[1], Erika TANAKA[2], Takeshi HANYU[1], Kenji SHIMIZU[3], Takayuki USHIKUBO[2], Qing CHANG[1], Yoshihiko TAMURA[1] (1. IMG, JAMSTEC , 2. Marine Core Research Institute, Kochi Univ. , 3. Kochi Institute for Core Sample Research, JAMSTEC)

Poster presentation | S3: Rheology and Material Transfer in Mantle and Crust (Special Session)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## S3: Rheology and Material Transfer in Mantle and Crust (Special Session)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S3-P-01] Preliminary results of deformation experiments on hydrous stishovite using a rotational DAC

*Shintaro AZUMA[1], Keishi Okazaki[2], Kentaro Uesugi[3], Masahiro Yasutake[3], Steeve Gréaux[4], Yoshiyuki Okuda[1,5], Bunrin Natsui[1], Eranga Jayawickrama[2], Kenji Ohta[1] (1. Tokyo Tech., 2. Hiroshima Univ., 3. JASRI, 4. Ehime Univ., 5. University of Hawai'i)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S3-P-02] Water weakening of $Mg_2SiO_4$ ringwoodite

「発表賞エントリー」

*Yuta Goto[1], Tomoaki Kubo[1], Rikuto Honda[1], Yuki Shibazaki[2] (1. Kyushu Univ., 2. KEK-PF)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S3-P-03] Toward an understanding of dehydration process of partially serpentinized slab peridotite under conditions where deep earthquakes occur

*Tomoaki KUBO[1], Musashi Ezaki[1], Nobumasa Fujiwara[1], Rikuto Honda[1], Goto Yuta[1], Noriyoshi Tsujino[2] (1. Kyushu University, 2. JASRI)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S3-P-04] Viscous anisotropy of olivine aggregates using micro Vickers indentation tests

「発表賞エントリー」

*Namu Fujii[1], Miki Tasaka[1] (1. Shizuoka University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S3-P-05] Crystal-fabric analysis using principal component analysis method for the Horoman peridotite

「発表賞エントリー」

*Kazuki Matsuyama[1], Katsuyoshi Michibayashi[1] (1. Nagoya Univ. Env.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S3-P-06] Traces of mantle fluid/melt within olivine phenocrysts from Ohima-Ōshima picritic basalts

*Ryo Tsukawaki[1], Terumi Ejima[2], Atusi Ninomiya[3], Shoji Arai[4] (1. Shinshu Univ. Sci., 2. Shinshu Univ. Sci. , 3. Sumiko Res. Exp. & Dev. Co., 4. Kanazawa Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S3-P-07] Microstructural characteristics of ultramafic rocks in the Tosa Megamullion, the Shikoku Basin.

「発表賞エントリー」

*So Inoue[1], Katsuyoshi Michibayashi[1,2], Yumiko Harigane[3], Yasuhiko Ohara[1,2,4] (1. GSES, Nagoya Univ. , 2. JAMSTEC, 3. GSJ/AIST, 4. JCG)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S3-P-08] Deformation microstructures of granitic mylonite in Hida Metamorphic Belt

「発表賞エントリー」

*Masaaki Horie[1], Katsuyoshi Michibayashi[1] (1. GSES. Nagoya Univ.)

Poster presentation | R1: Characterization and description of minerals (Joint Session with The Gemmological Society of Japan)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## R1: Characterization and description of minerals (Joint Session with The Gemmological Society of Japan)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-01] Chemical quantitative analysis of heulandite using SEM-EDS - How can we accurately estimate the chemical composition of zeolite?

「発表賞エントリー」

*Atsushi ISHIHARA[1], Hiroaki Ohfuji[1] (1. Tohoku uiversity)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-02] Quantitative electron microprobe analysis of xenotime

*Yasuyuki BANNO[1] (1. AIST)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-03] Deformation and compositional changes of plagioclase: A combined electron backscattered diffraction and energy dispersive X-ray spectroscopy approach

「発表賞エントリー」

*Kohei Nimura[1], Katsuyoshi Michibayashi[1,2] (1. Nagoya University, 2. JAMSTEC)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-04] Mineralogical features of smelting slags from the Early Iron Age Yashin Tepe site, northeastern Iraq

*Masanori KUROSAWA[1], Shin'ichi Nishiyama[2] (1. Univ. Tsukuba, 2. Chubu Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-05] The origin of abundant graphite in quartz veins in Ishidera area, Wazuka Town, Kyoto Prefecture, Japan

*Masaki Nishio[1], Itaru Mitsukawa[1], Yohei Igami[1], Akira Miyake[1], Norimasa Shimobayashi[1] (1. Kyoto Univ. Sci.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-06] Michitoshiite-(Cu), a new Ge-containing platinum group mineral from Haraigawa, Misato machi, Kumamoto Prefecture, Japan

*Takahiro TANAKA[1], Daisuke Nishio Hamane[2], Tadashi Shinmachi (1. Nittetsu Mining Co., Ltd., 2. ISSP, Univ. of Tokyo)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-07] Fibrous inclusions in rose quartz

*Yohei SHIROSE[1], Hayato Fudamoto[1], Sayako Inoue[2] (1. Ehime Univ. Sci., 2. Ehime Univ. GRC)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-08] Rose quartz in gneisses from Uoshima Island, Ehime Prefecture

*Yohei SHIROSE[1], Shoma Sakai[1] (1. Ehime Univ. Sci.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-09] Secondary arsenate minerals from the Takumi Mine, Hyogo Prefecture, Japan

*Yohei SHIROSE[1], Riakako Kamise[1], Katsuichi Nishida, Yoshiteru Fujiwara (1. Ehime Univ. Sci.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-10] Mineralogical properties of lautenthalite and wroewolfeite from the Nii mine, Hyogo Prefecture, Japan

*Masayuki Ohnishi, Norimasa Shimobayashi[1], Daisuke Nishio-Hamane[2], Keiji Shinoda[3], Takeshi Hisano (1. Sci., Kyoto Univ., 2. ISSP, Univ. of Tokyo, 3. Sci., Osaka Metro. Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-11] A re-examination of Sr-rich apatite from Itoigawa, Niigata Prefecture, Japan

*Seiichiro UEHARA[1], Koichi MONMA[2], Masayuki OHNISHI, Shunsuke OHSUMI, Yoshiya OHKI, Hiroki OKA[3] (1. Kyushu Univ. Museum, 2. Nat'l. Mus. Nat. Sci., 3. OYO Corp.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-12] Hydroxylchondrodite from Ogouchi ,Hinokage, Nisiusuki,Miyazaki Prefecture,Japan

*Toshiro Okada[1], Seiichiro Uehara[2], Isao Yukinori[3], Yohei Shirose[4] (1. Kashii 2 JHS, 2. Kyushu Univ, 3. Fukuoka Stc, 4. Ehime Univ)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-13] Arsenmedaite from the Yamato mine, Kagoshima Prefecture, SW Japan

*Shunsuke Ohsumi, Daisuke Nishio-Hamane[1], Hiroki Oka[2], Masashi Tamura[3], Kosuke Takagi[4] (1. ISSP, Univ. of Tokyo, 2. OYO Corp., 3. Fac. Eng. Tech. Div., Mie Univ., 4. Grad. Sch. of Eng., Mie Univ.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-14] "Common Hornblende" from Mt. Tawarayama (Goou-toge), the outer-rim of Mt. Aso, Kumamoto Prefecture

*Haruki Inoue[1], Seiichiro Uehara[2] (1. Enecom Co., Ltd., 2. Kyushu Univ. Museum)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-15] Chemical composition of tourmaline and amphibole associated with gabbro from Kajishima, Ehime Prefecture, Japan

「発表賞エントリー」

*Itsuki Ota[1], Kazuya Shimooka[2], satoshi saitou[1], youhei shirose[1] (1. Ehime Univ. Sci and Eng, 2. Kwansei Gakuin Univ. Sci)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-16] Constituent minerals of clay associated with the pegmatite dike in Nagatare, Fukuoka Prefecture, Japan

*Yuya TAKEDA[1], Seiichiro Uehara[2], Yoshihiro Kuwahara[3] (1. Kyushu Univ. ISGS, 2. Kyushu Univ. Museum, 3. Kyushu Univ. SCS)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-17] Microstructure of serpentine veins in peridotite in Ooshika Village, Nagano Prefecture, Japan

*Yuya TAKEDA[1], Yoshihiro Kuwahara[3], Seiichiro Uehara[2] (1. Kyushu Univ. ISGS, 2. Kyushu Univ. Museum, 3. Kyushu Univ. SCS)

Poster presentation | R3: High-pressure science and deep Earth's material

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## R3: High-pressure science and deep Earth's material

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R3-P-01] Influence of co-existing inorganic minerals on chemical reaction of *n*-alkane under high-pressure and high-temprature conditions of subduction zone.

*Ayako SHINOZAKI[1], Kina Takimoto[1], Takaya Nagai[1], Koichi Mimura[2] (1. Hokkaido University, 2. Nagoya University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R3-P-02] Differential Scanning Calorimetry of $Mn_2SiO_4$ tephroite

*Yuta Asami[1], Itaru Ohira[2], Hiroshi Kojitani[2] (1. Gakushuin Univ. Sci, 2. Gakushuin Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R3-P-03] Ab initio calculation of the polarized IR spectra and hydrogen positions of hydrous Bridgmanite

*Kikuyo Inagaki[1], Jun Tsuchiya[1], Yanyao Zhang[3], Jung-Fu Lin[2], Shun-ichiro Karato[4], Jennifer Kung[5], ChingChien Li[5] (1. GRC Ehime Univ. , 2. Univ. Texas Austin , 3. Stanford Univ., 4. Yale Univ., 5. National Cheng Kung Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R3-P-04] Determination of the stability of silica phases under high pressure by ultra-fast X-ray diffraction measurements

*Ryosuke SINMYO[1], Saori Kawaguchi-Imada[2], Takayuki Ishii[3], Hiroshi Sakuma[4], Ayase Ogawa[1], Kenta Kobayashi[1], Shuhou Maitani[1] (1. Meiji Univ. Sci. Tech., 2. JASRI, 3. Okayama Univ. IPM, 4. NIMS)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R3-P-05] Crystallographic preferred orientation properties of Ferropericlase polycrystals obtained from large strain deformation experiments under lower mantle pressures

「発表賞エントリー」

*Bunrin Natsui[1], Shintaro Azuma[1], Keishi Okazaki[2,5], Kentaro Uesugi[3], Masahiro Yasutake[3], Saori Kawaguchi[3], Ryuichi Nomura[4], Kenji Ohta[1] (1. Tokyo Tech, 2. Hiroshima Univ., 3. JASRI, 4. Kyoto Univ., 5. JAMSTEC)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R3-P-06] Investigation of hydrogen sealing materials at high temperature and high pressure using neutron imaging

*Sho KAKIZAWA[1], Hiroyuki Kagi[2], Masahiro Takano[2], Asami Sano-Furukawa[3], Takanori Hattori[3], Abe Jun[4], Kenichi Funakoshi[4] (1. JASRI, 2. UTokyo Sci., 3. JAEA J-PARC Center, 4. CROSS, Neutron Science and Technology Center)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R3-P-07] Reactions of FeS with hydrogen at high pressure and high temperature revisited

「発表賞エントリー」

*Masahiro Takano[1], Hiroyuki Kagi[1], Yuichiro Mori[1], Katsutoshi Aoki[1], Sho Kakizawa[2], Noriyoshi Tsujino[2], Yuji Higo[2], Asami Sano-Furukawa[3] (1. UTokyo, 2. JASRI, 3. J-PARC center, JAEA)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R3-P-08] Extreme pressure generation using toroidal diamond anvil cell

*Takeshi SAKAI[1], Yuki Nakamoto[2], Satoru Nakamura[1], Sotaro Iwatsu[2], Shuto Fukuda[2], Yuki Kato[2], Katsuya Shimizu[2], Hirokazu Kadobayashi[3], Saori Kawaguchi-Imada[3] (1. GRC, Ehime University, 2. KYOKUGEN, Osaka University, 3. JASRI)

# Fri. Sep 13, 2024

Poster presentation | T1: Comprehensive understanding of the crustal evolution and resource exploration in Asia (Symposium)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## T1: Comprehensive understanding of the crustal evolution and resource exploration in Asia (Symposium)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[T1-P-01] Syenitic veining at the northern Eastern Ghats Belt, India: Formation mechanism, fluid-rock interaction and a review of its economic mineral potential

*Kaushik DAS[1,5], Proloy Ganguly[2], Aparupa Banerjee[3], Sankar Bose[4,5] (1. Hiroshima University, 2. Kazi Nazrul University, 3. Shahid Matangini Hazra Government General Degree College, 4. Presidency University, 5. HiPeR, Hiroshima University)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[T1-P-02] Amphibole-bearing granitic rocks in the Ereendavaa block, NE Mongolia: Insights into multi-stage magmatic sources and crystallization conditions

*Munkhdelger Bold[1], Tatsuki Tsujimori[1], Yasuhito Osanai[2], Nobuhiko Nakano[2], Tatsuro Adachi[2], Otgonbayar Dandar[1], Fransiska Ayuni Catur Wahyuandari [2] (1. Tohoku Univ., 2. Kyushu Univ)

Poster presentation | S2: Water Rock Interaction (Special Session)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## S2: Water Rock Interaction (Special Session)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S2-P-01] Scales of extensional-shear fracturing and magnitudes of seismicity induced by magma intrusions into lower crust: Scale comparisons of dike swarm in the high-grade metamorphic rocks and deep low-frequency earthquakes

「発表賞エントリー」

*Takumi Nara[1], Masaoki Uno[1], Tetsuo Kawakami[2], Fumiko Higashino[2], Tatsuro Adachi[3], Noriyoshi Tsuchiya[1,4] (1. TOHOKU Univ. Env., 2. Kyoto Univ. Sci, 3. Kyushu Univ. Soc., 4. Hachinohe Kosen)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S2-P-02] Carbonation of serpentinite and formation process of listvenite from Urayama River, Shikokuchuo City, Ehime Prefecture, Japan

「発表賞エントリー」

*Hikaru Takagaki[1], Yohei Shirose[1] (1. Ehime Univ. Sci.&Egn.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S2-P-03] Texture transition during serpentinization in Hodono, Ehime Prefecture

「発表賞エントリー」

*Hinano Wada[1], Enju Satomi[1] (1. Ehime Univ. S/E)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S2-P-04] Water-rock interaction recorded in episyenites from Hakatajima Island, Ehime Prefecture

「発表賞エントリー」

*Toko FUKUI[1], Kazuya SHIMOOKA[2], Toshiro TAKAHASHI[3], Satoshi SAITO[1] (1. Ehime Univ., 2. Kwansei Gakuin Univ., 3. Niigata Univ.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S2-P-05] Mechanisms of Reaction-Induced Fracturing in Serpentinite Carbonation; Insights from Hydrothermal Experiments and Geochemical Modeling

「発表賞エントリー」

*Taiki Taiki[1], Masaoki Uno[1], Atsushi Okamoto[1] (1. Tohoku University)

Poster presentation | R4: Mineral sciences of the Earth surface

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## R4: Mineral sciences of the Earth surface

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R4-P-01] Design and synthesis of aragonite particles as a reinforcement of plastic materials

*Hiroshi SAKUMA[1], Shigeru SUEHARA[1], Masumi KAMON[1], Kenji TAMURA[1] (1. NIMS)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R4-P-03] Experiments on the Inhibitory Effect of Polysaccharides on Cation Ordering of Dolomite During Dolomitization Reaction at 200°C: Preliminary Results

Hiromi KONISHI[1], *Yao Chen[1] (1. Niigata Univ. Sci.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R4-P-04] Formation Process of Carbonate Minerals in Non-aqueous Solvents: Consideration of the Effects of Different Hydration States of Cations

Naoki IWANE[1], *Jun KAWANO[1], Hiroyuki KAGI[2], Ayako SHINOZAKI[1], Takaya NAGAI[1] (1. Hokkaido Univ. Sci., 2. UTokyo Sci.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R4-P-05] Impact of evaporation on CO2 mineralization during enhanced rock weathering

*Naoki NISHIYAMA[1], Masao SORAI[1], Keisuke FUKUSHI[2], Yuto NISHIKI[1] (1. National Institute of Advanced Industrial Science and Technology (AIST), 2. Kanazawa University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R4-P-06] Framboidal pyrite in modern stromatolite from Fukiage-Jigoku, Onikobe Spring, Miyagi, Japan

「発表賞エントリー」

*Tatsuya Kamada[1], Hiroaki Ohfuji[1] (1. Tohoku Univ. Sci.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R4-P-07] Observations of nano-texture for amosite asbestos by using high-resolution STEM imaging

*Hayato Miura[1], Ichiro Ohnishi[1] (1. JEOL Ltd.)

Poster presentation | R7: Petrology, Mineralogy and Economic geology (Joint Session with Society of Resource Geology)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## R7: Petrology, Mineralogy and Economic geology (Joint Session with Society of Resource Geology)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-01] Ezochiite and placer deposit of platinum group minerals in northwestern Hokkaido, Japan

*Daisuke HAMANE[1], Katsuyuki Saito (1. The University of Tokyo)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-02] Review for Mineralogical Science: Mineral Resources, Heritage Stone, and SDGs

*Yuhei Takahashi[1] (1. NUE)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-03] Formation process of olivine with remarkable parting and apparently oblique extinction in the lherzolite of Ochiai-Hokudo peridotite complex, Okayama Prefecture, Japan

*Terumi EJIMA[1], Takashima Chihiro[2], Arai Shoji[3] (1. Shinshu University, 2. DAIYA SEIKI Co., Ltd., 3. Kanazawa University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-04] The effect of Na ion on carbonation reaction of forsterite

*Hiroki Hasegawa[1], Atsushi Kyono[2], Satoru Okada[1], Kosuke Yamaguchi[1] (1. Univ of Tsukuba, Grad. sch. of Life and Environmental. Sci, 2. Univ of Tsukuba, Life and Environmental Science)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-05] Mineralogical characteristics of Pothole Reef and Pseudo Merensky Reef at the western limb of the Bushveld Complex, South Africa

「発表賞エントリー」

*Amu Umesato[1], Takuya Echigo[1], Yasushi Watanabe[1] (1. Akita Univ. Int.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-06] High-Ti biotite in the alkali volcanic rock from the Akiyoshi Belt and its significance

*Kosuke Kimura[1], Kaushik Das[2], Yasutaka Hayasaka[3] (1. Osaka Metro. Univ. Sci., 2. Hiroshima Univ., 3. Amakusa Mus. Goshoura Dinosaur Isl.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-07] Estimation of the origin of SDW in the Horoman peridotite complex by analysis of micro-inclusions in the olivine

「発表賞エントリー」

*Masaharu Aketa[1], Akira Miyake[1], Norikatsu Akizawa[2], Megumi Matsumoto[3], Yohei Igami[1], Itaru Mitsukawa[1] (1. Kyoto University, 2. University of Tokyo, 3. Tohoku University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-08] Fe-Ni-S-As minerals in the Imono peridotite body, Besshi area, Niihama city, Ehime prefecture.

「発表賞エントリー」

*Masato Kuniyoshi[1], Satomi Enju[1] (1. Ehime Univ.Sci and Eng.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-09] Fluorite mineralization associated with alkaline metasomatism in the Jinmu-Mihara deposit, Hiroshima, Japan.

「発表賞エントリー」

*Masahiro SUNADA[1], Takuya Echigo[1], Yasushi Watanabe[1] (1. Akita Univ. IRS.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-10] Petrological study of ultramafic rocks from the Kiyama area, eastern Kumamoto City

Narumichi Nishio[1], *Satoko ISHIMARU[2] (1. Kumamoto Univ. Sci., 2. Kumamoto Univ. FAST)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-11] FLUID INCLUSION STUDIES IN QUARTZ VEINS WITH TIN MINERALIZATION IN THE KIBARAN INTRUSIVE ROCKS IN KALEHE (SOUTH KIVU, DR CONGO)

「発表賞エントリー」

*MUSA Moise-Kam's SAIDI[1], MADDHUSOODHAN Satish Kumar[1] (1. Niigata Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-12] Depleted peridotite and melt reaction as recorded by layered dunite-harzburgite in the Horoman peridotite, Hidaka Metamorphic Belt, Hokkaido, Japan.

「発表賞エントリー」

*Keisuke Kurihara[1], Tatsuhiko Kawamoto[1], Aya Hihara[1], Miki Tasaka[1], Hajime Taniuchi[2], Takeshi Kuritani[3], Akiko Matsumoto[3] (1. Shizuoka Univ., 2. AIST, 3. Hokkaido Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-13] Research and development for the exploration of unknown cosmic ray events using Paleo-Detector

*Yuki Ido[1], Tatsuhiro Naka[2], Shota Futamura[3], Tohma Ori[4], Takenori Kato[5] (1. Nagoya Univ. Env., 2. Toho Univ. Sci, 3. Nagoya Univ. Sci., 4. N.I.T. Suzuka, 5. Nagoya Univ. ISEE)

Poster presentation | R8: Metamorphic rocks and tectonics

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## R8: Metamorphic rocks and tectonics

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-01] Mineralogical characterization of serpentinite varieties in Sangun-Renge Belt exposed at Sasaguri, Fukuoka Prefecture, and their geological implications

「発表賞エントリー」

*Swarnaa ANNADURAI MUNUSAMY[1], Jun-ichi ANDO[1,2], Yuki IWASAKI[3], Kaushik DAS[1,2], Dyuti Prakash SARKAR[4], Seiichiro UEHARA[5] (1. Hiroshima Univ., 2. HiPeR, Hiroshima, 3. NIPPON STEEL CORP., 4. JAMSTEC, 5. The Kyushu Univ. Museum)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-02] Metamorphic temperature structure of Sanbagawa Metamorphic Belt in the southern part of Shinshiro City, Aichi Prefecture, Japan

「発表賞エントリー」

*Akane Matsuzaki[1], Yui Kouketsu[1], Katsuyoshi Michibayashi[1] (1. Nagoya Univ. Env.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-03] Origin and pyrometamorphism of gneissose granitoid xenoliths from Mt. Daisen, Tottori Prefecture, SW Japan

「発表賞エントリー」

*Mizuki TAKAHASHI[1], Shunsuke Endo[1] (1. Shimane University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-04] Petrography of monazite in a metapelite in the eastern Nepal Himalaya and Development of Th-Pb dating method for monazite

「発表賞エントリー」

*Shumpei KUDO[1], Tetsuo Kawakami[1], Sota Niki[2], Toru Nakajima[3], Takafumi Hirata[4], Takeshi Imayama[5] (1. Kyoto Univ. Sci., 2. Nagoya Univ. ISEE., 3. JAEA, 4. UTokyo. Sci., 5. Okayama Univ. of Sci.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-05] Petrological description of ultramafic rocks in the low-grade metamorphic zone of the Sanbagawa belt: A case study of the Ina area, Nagano Prefecture, central Japan

「発表賞エントリー」

*Kaho Nobuhara[1], Hiroshi Mori[1], Takayoshi Nagaya[2] (1. Shinshu Univ. , 2. Tokyo Gakugei Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-06] Detrital zircon U–Pb dating and Raman spectral analysis of carbonaceous material in the boundary area of the Sanbagawa–Chichibu belts, central Kii Peninsula

*Hiroshi MORI[1], Kojiro USUI[1,2], Tetsuya Tokiwa[1], Kazuhiro Ozawa[3] (1. Shinshu University, 2. Nippon Koei Co., Ltd., 3. Precision Forestry Measurement Ltd.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-07] New finding of wakefieldite from an amphibolite in the Horokanai area, Kamuikotan HP metamorphic belt, Hokkaido, Japan

*Taro Kato[1], Kosuke NAEMURA[1], Toru Takeshita[2] (1. Iwate University, 2. Pacific Consultants Co., Ltd.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-08] Thermal history and protolithic detritus provenance of a sillimanite–chrysoberyl-bearing gneiss from the Ashio mountains in the western part of Tochigi prefecture

*Ippei KITANO[1] (1. Hokkaido Univ. Mus.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-09] Petrological characterlization and geochronology of metamorphic rocks from the Northern Subzone of the Maizuru Terrane

*Sota Muroi[1], Kaushik Das[1], Kenta Kawaguchi[1], Yasutaka Hayasaka[2] (1. Hiroshima University, 2. Amakusa Museum of Goshoura Dinosaur Island)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-10] The fate of organic carbon during subduction: Raman micro-spectroscopy and C-isotope geochemistry of carbonaceous materials in Sambagawa pelitic schists, central Shikoku, Japan

*Hironobu Harada[1], Tatsuki Tsujimori[1], Akizumi Ishida[1], Takeshi Kakegawa[1], Tetsumaru Itaya[2] (1. Tohoku Univ., 2. jGnet)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-11] Fluid inclusions of ophicarbonates in the Apennine Mountains, Italy

Hiroyuki Kaneko[1], *Tatsuhiko KAWAMOTO[1], Francesca Meneghini[2], Yosuke Osawa[1] (1. Shizuoka University, 2. Università di Pisa | UNIPI · Department of Earth Sciences)

# Sat. Sep 14, 2024

Poster presentation | R2: Crystal structure, crystal chemistry, physical properties of minerals, crystal growth and applied mineralogy

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## R2: Crystal structure, crystal chemistry, physical properties of minerals, crystal growth and applied mineralogy

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-01] Advanced four-circle goniometer system for single-crystal diffraction measurements at BL-10A, PF: anomalous X-ray scattering method & in situ high-pressure experiments

*Takahiro KURIBAYASHI[1], Ryo Yamane[2], Keita Harada[1], Toshiro Nagase[3], Kazumasa Sugiyama[2] (1. Tohoku University (Sci), 2. Tohoku University (IMR), 3. Tohoku University (Mus))

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-02] Fine Structural Analysis using Single-Crystal Anomalous X-ray Scattering in KEK Photon Factory BL-6C

*Makoto TOKUDA[1], Takumi Ichimura[2], Koichi Momma[6], Ritsuro Miyawaki[6], Takashi Mikouchi[4], Akira Yoshiasa[3], Kazumasa Sugiyama[5] (1. IINa, Kumamoto Univ., 2. Tohoku Univ. Eng, 3. Kumamoto Univ. Sci, 4. Univ. of Tokyo UMUT , 5. IMR, Tohoku Univ., 6. Nat'l. Mus. Nat. Sci.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-03] Evaluation of Fe K-edge XANES anisotropy and accurate determination of micro-area $Fe^{2+}/Fe^{3+}$ in clinopyroxene using multivariate analysis

「発表賞エントリー」

*Taisuke Ito[1], Simon Richard Wallis[1], Yoshio Takahashi[1] (1. The Univ. of Tokyo, EPS)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-04] Fine structural analysis of Diopside (Violan) containing Mn and Fe

「発表賞エントリー」

*Hayato Chiba[1], Kazumasa Sugiyama[2], Makoto Tokuda[3], Takashi Mikouchi[4] (1. Tohoku Univ. Eng., 2. Tohoku Univ. IMR, 3. Kumamoto Univ. IINa, 4. UMUT)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-05] Single-crystal X-ray diffraction study of a largely Cs-exchanged natural Ca-chabazite: crystal-chemical factors for its excellent Cs-exchange ability

Naomi KAWATA[1], Ryo FURUHASHI[1], Keiko FUJIWARA[1], Makio OHKAWA[2], *Akihiko NAKATSUKA[1] (1. Yamaguchi Univ. Sci. Tech. Innov., 2. Hiroshima Univ. Adv. Sci. Eng.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-06] Distribution of $Mn^{3+}$ and $Mn^{4+}$ studied by X anomalous scattering: the details of 3×4 tunneled structure formed by $MnO_6$ octahedron in woodruffite

「発表賞エントリー」

*Christopher Miyazaki[1], Ryo Yamane[2], Kazumasa Sugiyama[2], Makoto Tokuda[3], Takeshi Mikouchi[4] (1. Tohoku Univ. Eng., 2. Tohoku Univ. IMR, 3. Kumamoto Univ. IINa, 4. UMUT)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-07] $Mg^{2+}$ and $Ba^{2+}$ ion-exchange of GTS-type Na titanosilicate and its structural characterization

*Keiko FUJIWARA[1], Naomi Kawata[1], Akihiko Nakatsuka [1] (1. Yamaguchi Univ. Sci. Tech. Innov.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-08] Distribution of $Fe^{3+}$ among tetrahedral sites and crystal structural change of gehlenite-$Fe^{3+}$ gehlenite

*Maki HAMADA[1], Mariko Nagashima[2] (1. Kanazawa University, 2. Yamaguchi University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-09] Crystallographic site preference of impurity elements in olivine by ALCHEMI method

*Yohei IGAMI[1], Akira MIYAKE[1], Ryo WAKABAYASHI[1], Norikatsu AKIZAWA[2] (1. Kyoto University, 2. The University of Tokyo)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-10] Precipitated structures of pyroxene lamellar with various directions

*Shoichi TOH[1] (1. Fukuoka University)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-11] Crystal chemistry of bridgmanite with Al/Fe contents expected in MORB component

*Akihiko NAKATSUKA[1], Hiroshi FUKUI[2], Seiji KAMADA[3], Naohisa HIRAO[2], Makio OHKAWA[4], Kazumasa SUGIYAMA[5], Takashi YOSHINO[6] (1. Yamaguchi Univ. Sci. Tech. Innov., 2. JASRI, 3. AD Science Inc., 4. Hiroshima Univ. Adv. Sci. Eng., 5. Tohoku Univ. IMR, 6. Okayama Univ. IPM)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-12] Mechanism of the pressure-induced crystallization of amorphous calcium carbonate

*Chiho Morita[1], Hiroki Kobayashi[1], Hiroyuki Kagi[1] (1. UTokyo. Sci.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-13] Differences in the effects of Li and Cs on the calcitization of vaterite.

*Noboru FURUKAWA[1], Ami Kinoda[2] (1. Chiba University, 2. NIWAKA)

Poster presentation | R5: Extraterrestrial materials

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## R5: Extraterrestrial materials

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R5-P-01] Dehydration of Newberyite($MgHPO_4.3H_2O$) under low pressures

*Yukako Matsumoto[1], Shogo Tachibana[1] (1. UTokyo)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R5-P-02] Experimental simulation of oxygen isotope exchange between chondrule melt and low-pressure water vapor

*Daiki YAMAMOTO[1], Noriyuki Kawasaki[2] (1. Kyushu University, 2. Hokkaido University)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R5-P-03] Early impact events recorded in anomalous eucrites

*Akira YAMAGUCHI[1] (1. National Institute of Polar Research)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R5-P-04] Internal Structure Analaysis of Carbonaceous Material in Yamato 8448 Ureilite

*Masahiro YASUTAKE[1], Megumi Matsumoto[2], Akira Tsuchiyama[3,4], Kentaro Uesugi[1], Akihisa Takeuchi[1], Akira Yamaguchi[5] (1. JASRI, 2. Tohoku Univ., 3. Ritsumeikan Univ., 4. CAS/GIG, 5. NIPR)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R5-P-05] Effects of initial porosity on shock deformation microstructures in rutile

*Yuhei Umeda[1,2], Yuma Nagai[1,2], Naotaka Tomioka[3], Toshimori Sekine[4], Masashi Miyakawa[5], Takamichi Kobayashi[5], Hitoshi Yusa[5], Takuo Okuchi[1,2] (1. KURNS, 2. Kyoto Univ. Eng., 3. JAMSTEC, 4. HPSTAR, 5. NIMS)

Poster presentation | R6: Plutonic rocks, volcanic rocks and subduction factory

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## R6: Plutonic rocks, volcanic rocks and subduction factory

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R6-P-01] Orthopyroxene cumulates from a serpentinite mud-volcano in the mariana forearc: constituent rocks of the forearc Moho transition zone

*Pia Ataka[1], Yuji Ichiyama[1], Shun Takamizawa[1], Akihiro Tamura[2], Tomoaki Motishita[2] (1. Chiba University, 2. Kanazawa University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R6-P-02] Formation processes of high-Mg andesite associated with ophiolitic rocks in the Setogawa belt

*Tsumugi Kato[1], Yuji Ichiyama[1], Akihiro Tamura[2], Tomoaki Morishita[2] (1. Chiba Univ., 2. Kanazawa Univ.)

---

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R6-P-03] Petrological and geochemical study of volcanics from Kuju volcanic group, Kyushu Island, Southwest Japan Arc.

「発表賞エントリー」

*Soma Yamanaka[1], Tomoyuki Shibata[1], Ryotaro Fujihara[1], Masako Yoshikawa[1], Tomo Shibata[2] (1. Hiroshima Univ. Sci. & Tech, 2. Fukuoka Univ. Sci.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R6-P-04] Petrological study of intrusive rocks and their crustal xenoliths in the Suzu area, Atsumi district, Yamagata

*Kazuhiro Tojo[1], Takashi Hoshide[1] (1. Akita Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R6-P-05] Crystallization conditions of zircon and its crystallization relationship with surrounding minerals in the Tono plutonic complex, Kitakami mountains

*Yasuhiro OGITA[1,2], Shuhei Sakata[3], Takeshi Ohno[4], Tatsunori Yokoyama[2], Satoshi Suzuki[1], Kyoka Endo[1], Takashi Yuguchi[5] (1. Yamagata Univ., 2. JAEA, Tono Geoscience Center, 3. The Univ. Tokyo, Earthquake Research Inst., 4. Gakushuin Univ., 5. Kumamoto Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R6-P-06] Petrography and magmatic processes of a diorite body distributed in the Kawakami region, Yamaguchi Prefecture, Japan

「発表賞エントリー」

*Ryosei Sugiura[1], Keisuke Eshima[1] (1. Yamaguchi University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R6-P-07] Sr–Nd–Hf isotopic systematics for the Habu granodiorite, eastern part of Yamaguchi Prefecture

*Masaaki OWADA[1], Yusaku Akimoto[2], Mariko Nagashima[1], Keisuke Eshima[1], Atsushi Kamei[3], Nobuhisko Nakano[4], Kenta Kawaguchi[5], Yasuhito Osanai[4] (1. Yamaguchi Univ., 2. YON-C, 3. Shimane Uni., 4. Kyushu Univ., 5. Hiroshima Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R6-P-08] Rare earth element compositions and U-Pb zircon age of granodiorite porphyrites in the Noko Island, western part of northern Kyushu

*Masaki YUHARA[1], Yoshinobu KAWANO[2], Kazuhiro TSUKADA[3], Purevdulam SUKHBAATAR[4] (1. Fukuoka Univ. Sci., 2. Rissho Univ. Env. Sci., 3. Nagoya Univ. Mus., 4. Nagoya Univ. Env. St.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R6-P-09] Compositional changes and growth processes of the Asakura granodiorite, Northern Kyushu, Japan.

「発表賞エントリー」

*Yudai HAMANO[1], Keisuke ESHIMA[1] (1. Yamaguchi Uni. Sci)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R6-P-10] Intrusive relationship and lithofacies classification of Granite–Granodiorite in Eastern Fukuoka Prefecture

「発表賞エントリー」

*Ryo Nakamura[1], Keisuke Eshima[1] (1. Yamaguchi University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R6-P-11] Crystallization processes of quartz in a granitic magma: Implications for the magma chamber processes of Okueyama granite, Kyushu, Japan

*Takashi YUGUCHI[1], Takenori Kato[4], Yasuhiro Ogita[2], Minori Watanabe[6], Asuka Kato[6], Daichi Itoh[6], Tatsunori Yokoyama[2], Shuhei Sakata[3], Takeshi Ohno[5] (1. Kumamoto University, 2. JAEA, 3. Uni. Tokyo ERI, 4. Nagoya University, 5. Gakushuin University, 6. Yamagata University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R6-P-13] Differentiation Processes of Granitic Magma Chamber Recorded in 'Oshima-ishi' Distributed in Oshima, Geiyo islands, Ehime Prefecture

*Kazuya SHIMOOKA[1,2], Soichiro AONO[2], Takahito ONISHI[2], Toko FUKUI[2], Motohiro TSUBOI[1], Toshiro TAKAHASHI[3], Satoshi SAITO[2] (1. Kwansei Gakuin Univ., 2. Ehime Univ., 3. Niigata Univ.)

Poster presentation | S1: Dynamics of igneous processes (Special Session)

Thu. Sep 12, 2024 12:30 PM - 2:00 PM JST | Thu. Sep 12, 2024 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## S1: Dynamics of igneous processes (Special Session)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [S1-P-01] Oxidation states of HIMU-type ocean island basalts: Insights from μ-XANES analysis of quenched glasses and melt inclusions

*Yuuki HAGIWARA[1], Hidemi Ishibashi[2], Takeshi Hanyu[1] (1. Japan Agency for Marine-Earth Science and Technology, 2. Shizuoka Univ.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [S1-P-02] The composition and pressure of the fluid in crystal mush estimated from cordierite in tonalitic polycrystalline volcanic ejecta

*Shumpei YOSHIMURA[1] (1. Hokkaido University)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [S1-P-03] Geochemical evolution of Izu-Oshima volcano: Constraints from analysis of melt inclusions in a submarine core

*Morihisa HAMADA[1], Erika TANAKA[2], Takeshi HANYU[1], Kenji SHIMIZU[3], Takayuki USHIKUBO[2], Qing CHANG[1], Yoshihiko TAMURA[1] (1. IMG, JAMSTEC , 2. Marine Core Research Institute, Kochi Univ. , 3. Kochi Institute for Core Sample Research, JAMSTEC)

# Oxidation states of HIMU-type ocean island basalts: Insights from $\mu$-XANES analysis of quenched glasses and melt inclusions

*Yuuki HAGIWARA[1], Hidemi Ishibashi[2], Takeshi Hanyu[1]

1. Japan Agency for Marine-Earth Science and Technology, 2. Shizuoka Univ.

Keywords: Ocean island basalt, Oxidation state, Melt inclusion, $\mu$-XENES

# The composition and pressure of the fluid in crystal mush estimated from cordierite in tonalitic polycrystalline volcanic ejecta

*Shumpei YOSHIMURA[1]

1. Hokkaido University

Keywords: Cordierite, Crystal mush

# Geochemical evolution of Izu-Oshima volcano: Constraints from analysis of melt inclusions in a submarine core

*Morihisa HAMADA[1], Erika TANAKA[2], Takeshi HANYU[1], Kenji SHIMIZU[3], Takayuki USHIKUBO[2], Qing CHANG[1], Yoshihiko TAMURA[1]

1. IMG, JAMSTEC , 2. Marine Core Research Institute, Kochi Univ. , 3. Kochi Institute for Core Sample Research, JAMSTEC

## Background

Magmas erupting from Izu-Oshima volcano have been interacted with those from Izu-Tobu volcano (Ishizuka et al., 2015, EPSL). Ishizuka et al. (2015) clarified geochemical evolution of Izu-Oshima volcano based on whole-rock geochemical analysis of Izu-Oshima onland samples. In order to extend their previous study, we analyzed melt inclusions in a submarine core.

## Samples and analytical methods

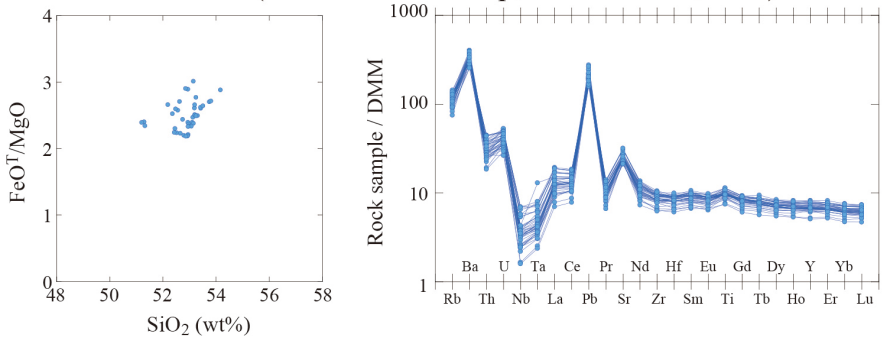
We recovered a 25-cm long submarine push core from the seafloor located as far as about 10 km east of Izu-Oshima volcano during the research cruise KR21-16. This core comprises of tephra layers deposited from 4,500 y.B.P. to 3,200 y.B.P., where ages were determined by $^{14}C$ dating of foraminifera. The push core samples were divided into ten parts, each of which is 2.5 cm long. We then collected minerals (olivine, plagioclase and orthopyroxene) from each part and polished them until the surface of the melt inclusions were exposed. Volatile elements ($H_2O$, $CO_2$, S, F and Cl) and $P_2O_5$ were analyzed by SIMS, and major elements were analyzed by EPMA. For larger melt inclusions, we also analyzed trace elements by LA-ICP-MS.

## Results and discussion

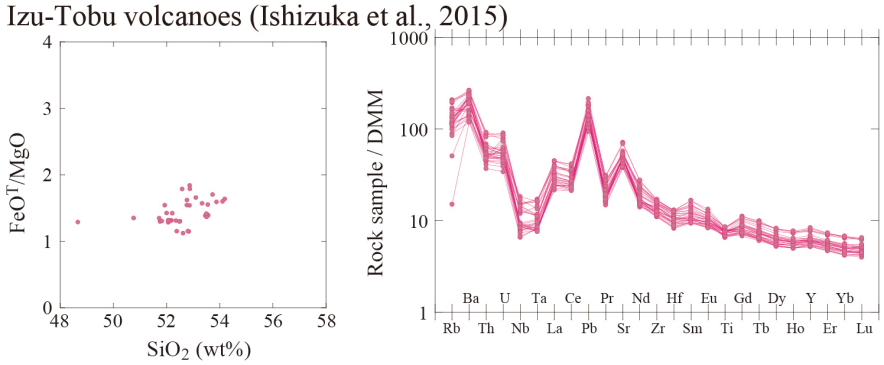
We finally analyzed 100 melt inclusions (51-55 wt% $SiO_2$) in total. Geochemical data of melt inclusions can be separated into 3 groups. Group A melt inclusions are dominant at upper levels of the push core, which corresponds to Izu-Oshima melts (Ishizuka et al., 2015). Systematics of $H_2O$ and $CO_2$ concentrations of Group A melt inclusions demonstrate that crystallization differentiation took place at $P<100$ MPa. Group C melt inclusions are dominant at lower levels, which is hybrid magma of Izu-Oshima and Izu-Tobu magmas. Systematics of $H_2O$ and $CO_2$ concentrations of Group C melt inclusions demonstrate that crystallization differentiation took place at $P>100$ MPa. Group B melt inclusions are dominant at intermediate levels and show intermediate characteristics between Group A and Group C melt inclusions, suggesting that Group A and Group C mixed. We argue that melt composition of Izu-Oshima volcano evolved from Group C, Group B to Group A from 4,500 y.B.P. to 3,200 y.B.P.

Keywords: Izu-Oshima volcano, melt inclusion

Izu-Oshima volcano (Older Oshima Group; Ishizuka et al., 2015)

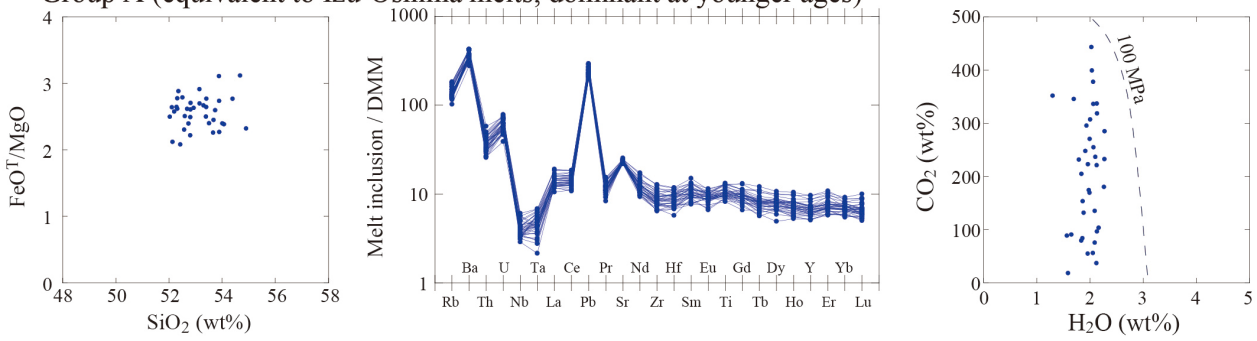



Izu-Tobu volcanoes (Ishizuka et al., 2015)

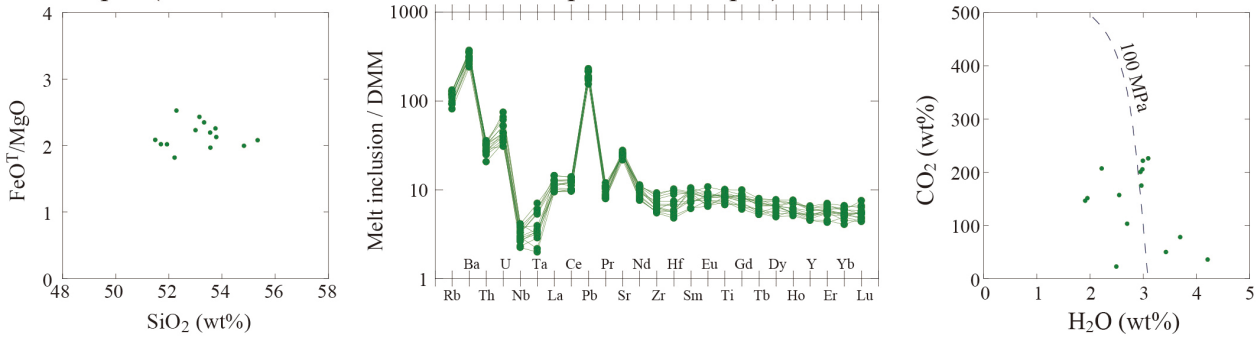



## This study

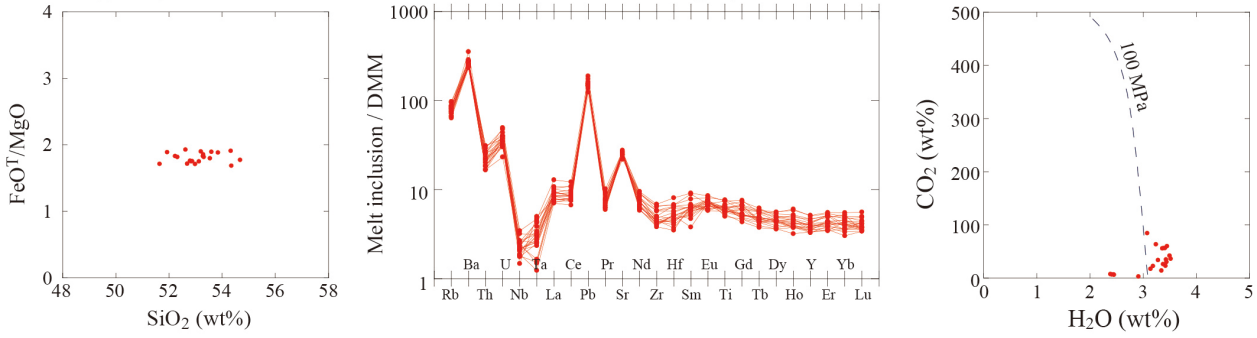
Group A (equivalent to Izu-Oshima melts, dominant at younger ages)




Group B (intermediate melts betwenen Group A and Group C)




Group C (closer to Izu-Tobu melts, dominant at older ages)



Poster presentation | S3: Rheology and Material Transfer in Mantle and Crust (Special Session)

Thu. Sep 12, 2024 12:30 PM - 2:00 PM JST | Thu. Sep 12, 2024 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## S3: Rheology and Material Transfer in Mantle and Crust (Special Session)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [S3-P-01] Preliminary results of deformation experiments on hydrous stishovite using a rotational DAC

*Shintaro AZUMA[1], Keishi Okazaki[2], Kentaro Uesugi[3], Masahiro Yasutake[3], Steeve Gréaux[4], Yoshiyuki Okuda[1,5], Bunrin Natsui[1], Eranga Jayawickrama[2], Kenji Ohta[1] (1. Tokyo Tech., 2. Hiroshima Univ., 3. JASRI, 4. Ehime Univ., 5. University of Hawai'i)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [S3-P-02] Water weakening of $Mg_2SiO_4$ ringwoodite

「発表賞エントリー」

*Yuta Goto[1], Tomoaki Kubo[1], Rikuto Honda[1], Yuki Shibazaki[2] (1. Kyushu Univ., 2. KEK-PF)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [S3-P-03] Toward an understanding of dehydration process of partially serpentinized slab peridotite under conditions where deep earthquakes occur

*Tomoaki KUBO[1], Musashi Ezaki[1], Nobumasa Fujiwara[1], Rikuto Honda[1], Goto Yuta[1], Noriyoshi Tsujino[2] (1. Kyushu University, 2. JASRI)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [S3-P-04] Viscous anisotropy of olivine aggregates using micro Vickers indentation tests

「発表賞エントリー」

*Namu Fujii[1], Miki Tasaka[1] (1. Shizuoka University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [S3-P-05] Crystal-fabric analysis using principal component analysis method for the Horoman peridotite

「発表賞エントリー」

*Kazuki Matsuyama[1], Katsuyoshi Michibayashi[1] (1. Nagoya Univ. Env.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [S3-P-06] Traces of mantle fluid/melt within olivine phenocrysts from Ohima-Ōshima picritic basalts

*Ryo Tsukawaki[1], Terumi Ejima[2], Atusi Ninomiya[3], Shoji Arai[4] (1. Shinshu Univ. Sci., 2. Shinshu Univ. Sci. , 3. Sumiko Res. Exp. & Dev. Co., 4. Kanazawa Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [S3-P-07] Microstructural characteristics of ultramafic rocks in the Tosa Megamullion, the Shikoku Basin.

「発表賞エントリー」

*So Inoue[1], Katsuyoshi Michibayashi[1,2], Yumiko Harigane[3], Yasuhiko Ohara[1,2,4] (1. GSES, Nagoya Univ. , 2. JAMSTEC, 3. GSJ/AIST, 4. JCG)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [S3-P-08] Deformation microstructures of granitic mylonite in Hida Metamorphic Belt

「発表賞エントリー」

*Masaaki Horie[1], Katsuyoshi Michibayashi[1] (1. GSES. Nagoya Univ.)

# Preliminary results of deformation experiments on hydrous stishovite using a rotational DAC

*Shintaro AZUMA[1], Keishi Okazaki[2], Kentaro Uesugi[3], Masahiro Yasutake[3], Steeve Gréaux[4], Yoshiyuki Okuda[1,5], Bunrin Natsui[1], Eranga Jayawickrama[2], Kenji Ohta[1]

1. Tokyo Tech., 2. Hiroshima Univ., 3. JASRI, 4. Ehime Univ., 5. University of Hawai'i

Keywords: Rotational diamond anvil cell, High temperature and pressure, Hydrous stishovite, Rheology, Deformation experiment

# Water weakening of $Mg_2SiO_4$ ringwoodite

*Yuta Goto[1], Tomoaki Kubo[1], Rikuto Honda[1], Yuki Shibazaki[2]

1. Kyushu Univ., 2. KEK-PF

Keywords: in-situ X-ray observation, high-pressure deformation experiment, water content, water weakening, mantle transition zone

# Toward an understanding of dehydration process of partially serpentinized slab peridotite under conditions where deep earthquakes occur

*Tomoaki KUBO[1], Musashi Ezaki[1], Nobumasa Fujiwara[1], Rikuto Honda[1], Goto Yuta[1], Noriyoshi Tsujino[2]

1. Kyushu University, 2. JASRI

Keywords: deep slab, dehydration process, dehydration embrittlement, water weakening

# Viscous anisotropy of olivine aggregates using micro Vickers indentation tests

*Namu Fujii[1], Miki Tasaka[1]

1. Shizuoka University

Keywords: olivine, low temperature plasticity, Vickers indentation tests, anisotropy, viscosity

# Crystal-fabric analysis using principal component analysis method for the Horoman peridotite

*Kazuki Matsuyama[1], Katsuyoshi Michibayashi[1]

1. Nagoya Univ. Env.

Keywords: Olivine, Crystal-fabric, Horoman peridotite complex, Principal component analysis

# Traces of mantle fluid/melt within olivine phenocrysts from Ohima-Ōshima picritic basalts

*Ryo Tsukawaki[1], Terumi Ejima[2], Atusi Ninomiya[3], Shoji Arai[4]

1. Shinshu Univ. Sci., 2. Shinshu Univ. Sci. , 3. Sumiko Res. Exp. & Dev. Co., 4. Kanazawa Univ.

Keywords: Mantle, Picritic basalt, Olivine, Fluid/melt, Oshima-Ōshima

# Microstructural characteristics of ultramafic rocks in the Tosa Megamullion, the Shikoku Basin.

*So Inoue[1], Katsuyoshi Michibayashi[1,2], Yumiko Harigane[3], Yasuhiko Ohara[1,2,4]

1. GSES, Nagoya Univ. , 2. JAMSTEC, 3. GSJ/AIST, 4. JCG

Keywords: Megamullion, Olivine, Back-arc basin, ductile shear deformation

# Deformation microstructures of granitic mylonite in Hida Metamorphic Belt

*Masaaki Horie[1], Katsuyoshi Michibayashi[1]

1. GSES. Nagoya Univ.

Keywords: Granitic mylonite, Deformation microstructure, Crystallographic preferred orientation, Hida Metamorphic Belt

Poster presentation | R1: Characterization and description of minerals (Joint Session with The Gemmological Society of Japan)

Thu. Sep 12, 2024 12:30 PM - 2:00 PM JST | Thu. Sep 12, 2024 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## R1: Characterization and description of minerals (Joint Session with The Gemmological Society of Japan)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-01] Chemical quantitative analysis of heulandite using SEM-EDS - How can we accurately estimate the chemical composition of zeolite?

「発表賞エントリー」

*Atsushi ISHIHARA[1], Hiroaki Ohfuji[1] (1. Tohoku uiversity)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-02] Quantitative electron microprobe analysis of xenotime

*Yasuyuki BANNO[1] (1. AIST)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-03] Deformation and compositional changes of plagioclase: A combined electron backscattered diffraction and energy dispersive X-ray spectroscopy approach

「発表賞エントリー」

*Kohei Nimura[1], Katsuyoshi Michibayashi[1,2] (1. Nagoya University, 2. JAMSTEC)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-04] Mineralogical features of smelting slags from the Early Iron Age Yashin Tepe site, northeastern Iraq

*Masanori KUROSAWA[1], Shin'ichi Nishiyama[2] (1. Univ. Tsukuba, 2. Chubu Univ.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-05] The origin of abundant graphite in quartz veins in Ishidera area, Wazuka Town, Kyoto Prefecture, Japan

*Masaki Nishio[1], Itaru Mitsukawa[1], Yohei Igami[1], Akira Miyake[1], Norimasa Shimobayashi[1] (1. Kyoto Univ. Sci.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-06] Michitoshiite-(Cu), a new Ge-containing platinum group mineral from Haraigawa, Misato machi, Kumamoto Prefecture, Japan

*Takahiro TANAKA[1], Daisuke Nishio Hamane[2], Tadashi Shinmachi (1. Nittetsu Mining Co., Ltd., 2. ISSP, Univ. of Tokyo)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-07] Fibrous inclusions in rose quartz

*Yohei SHIROSE[1], Hayato Fudamoto[1], Sayako Inoue[2] (1. Ehime Univ. Sci., 2. Ehime Univ. GRC)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-08] Rose quartz in gneisses from Uoshima Island, Ehime Prefecture

*Yohei SHIROSE[1], Shoma Sakai[1] (1. Ehime Univ. Sci.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-09] Secondary arsenate minerals from the Takumi Mine, Hyogo Prefecture, Japan

*Yohei SHIROSE[1], Riakako Kamise[1], Katsuichi Nishida, Yoshiteru Fujiwara (1. Ehime Univ. Sci.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-10] Mineralogical properties of lautenthalite and wroewolfeite from the Nii mine, Hyogo Prefecture, Japan

*Masayuki Ohnishi, Norimasa Shimobayashi[1], Daisuke Nishio-Hamane[2], Keiji Shinoda[3], Takeshi Hisano (1. Sci., Kyoto Univ., 2. ISSP, Univ. of Tokyo, 3. Sci., Osaka Metro. Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-11] A re-examination of Sr-rich apatite from Itoigawa, Niigata Prefecture, Japan

*Seiichiro UEHARA[1], Koichi MONMA[2], Masayuki OHNISHI, Shunsuke OHSUMI, Yoshiya OHKI, Hiroki OKA[3] (1. Kyushu Univ. Museum, 2. Nat'l. Mus. Nat. Sci., 3. OYO Corp.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-12] Hydroxylchondrodite from Ogouchi ,Hinokage, Nisiusuki,Miyazaki Prefecture,Japan

*Toshiro Okada[1], Seiichiro Uehara[2], Isao Yukinori[3], Yohei Shirose[4] (1. Kashii 2 JHS, 2. Kyushu Univ, 3. Fukuoka Stc, 4. Ehime Univ)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-13] Arsenmedaite from the Yamato mine, Kagoshima Prefecture, SW Japan

*Shunsuke Ohsumi, Daisuke Nishio-Hamane[1], Hiroki Oka[2], Masashi Tamura[3], Kosuke Takagi[4] (1. ISSP, Univ. of Tokyo, 2. OYO Corp., 3. Fac. Eng. Tech. Div., Mie Univ., 4. Grad. Sch. of Eng., Mie Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-14] “Common Hornblende” from Mt. Tawarayama (Goou-toge), the outer-rim of Mt. Aso, Kumamoto Prefecture

*Haruki Inoue[1], Seiichiro Uehara[2] (1. Enecom Co., Ltd., 2. Kyushu Univ. Museum)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-15] Chemical composition of tourmaline and amphibole associated with gabbro from Kajishima, Ehime Prefecture, Japan

「発表賞エントリー」

*Itsuki Ota[1], Kazuya Shimooka[2], satoshi saitou[1], youhei shirose[1] (1. Ehime Univ. Sci and Eng, 2. Kwansei Gakuin Univ. Sci)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-16] Constituent minerals of clay associated with the pegmatite dike in Nagatare, Fukuoka Prefecture, Japan

*Yuya TAKEDA[1], Seiichiro Uehara[2], Yoshihiro Kuwahara[3] (1. Kyushu Univ. ISGS, 2. Kyushu Univ. Museum, 3. Kyushu Univ. SCS)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R1-P-17] Microstructure of serpentine veins in peridotite in Ooshika Village, Nagano Prefecture, Japan

*Yuya TAKEDA[1], Yoshihiro Kuwahara[3], Seiichiro Uehara[2] (1. Kyushu Univ. ISGS, 2. Kyushu Univ. Museum, 3. Kyushu Univ. SCS)

# Chemical quantitative analysis of heulandite using SEM-EDS - How can we accurately estimate the chemical composition of zeolite?

*Atsushi ISHIHARA[1], Hiroaki Ohfuji[1]

1. Tohoku uiversity

Keywords: Zeolite, SEM-EDS, heulandite

*balance error : $E = \frac{[Al]-([Na]+[K]+[Ca]\times 2)}{([Na]+[K]+[Ca]\times 2)} \times 100$ (Passaglia, 1970)

# Quantitative electron microprobe analysis of xenotime

*Yasuyuki BANNO[1]

1. AIST

The conditions suitable for the quantitative analysis of xenotime from the Takehara mine in Mie Prefecture, Japan, using EPMA were investigated. First, a qualitative analysis was performed to identify the major elements and determine the characteristic X-ray positions and the appropriate background measurement positions. In cases where the overlap of peaks was significant, a pulse height analyzer was used when higher-order lines overlapped. An interference correction factor was determined to correct the measured intensity when first-order lines interfered.

Keywords: EPMA, Xenotime, Chemical composition, Takehara mine

# Deformation and compositional changes of plagioclase: A combined electron backscattered diffraction and energy dispersive X-ray spectroscopy approach

*Kohei Nimura[1], Katsuyoshi Michibayashi[1,2]

1. Nagoya University, 2. JAMSTEC

Keywords: plagioclase, recrystallization, electron backscattered diffraction, energy dispersive X-ray spectroscopy

# Mineralogical features of smelting slags from the Early Iron Age Yashin Tepe site, northeastern Iraq

*Masanori KUROSAWA[1], Shin'ichi Nishiyama[2]

1. Univ. Tsukuba, 2. Chubu Univ.

Microstructures, materials, and chemical compositions of four metal-smelting slags and two specimens of corroded ironware from the Early Iron Age Yasin Tepe site in northeastern Iraq were analyzed with a scanning electron microscope equipped with an energy-dispersive X-ray spectrometer (SEM-EDS) to examine the technical level of the Iron Age iron-smelting in the frontier area of West Asia. Two types of metal-smelting slag were identified in the slag samples: copper smelting slag and iron smelting slag. The surfaces of both types were covered with a thin altered film. The copper smelting slag was vitreous with a light greenish interior and consisted mainly of Ca-Al silicate glass and precipitated crystals of augite. The slag also contained tiny fragments of limestone in the process of melting reaction. The ironmaking slag was black vitreous inside and composed of dendritic crystals of wustite, Ca-Al silicate glass, and Ca-Al silicate mineral precipitates. The Ca-Al silicates were found to have precipitated at 1200-1300 degrees. Small pieces of limestone in the middle of the melting reaction were also observed. Since limestone is abundant around the site, it is thought that limestone was used as a slag-forming agent in metal smelting. The CaO-rich slag produced by limestone incorporation is favorable for the production of high-purity iron, suggesting that high-quality iron was produced in the early Iron Age. The ironware samples were almost completely corroded and consisted mainly of iron hydroxide and small amounts of iron oxides. However, some traces of metallic iron were also observed, and the metallic iron was of high quality with very few impurities. These results indicate that iron suitable for ironware making with high purity was produced in in the frontier area of West Asia from around 800 BCE using advanced smelting technology that utilizes high temperatures of over 1200 degrees and limestone as a slag-forming agent.

Keywords: slag, iron smelting, ironware, SEM-EDS, Yasin-Tepe site

# The origin of abundant graphite in quartz veins in Ishidera area, Wazuka Town, Kyoto Prefecture, Japan

*Masaki Nishio[1], Itaru Mitsukawa[1], Yohei Igami[1], Akira Miyake[1], Norimasa Shimobayashi[1]

1. Kyoto Univ. Sci.

Keywords: Graphite, Fluid inclusion, C-O-H fluid, Quartz vein

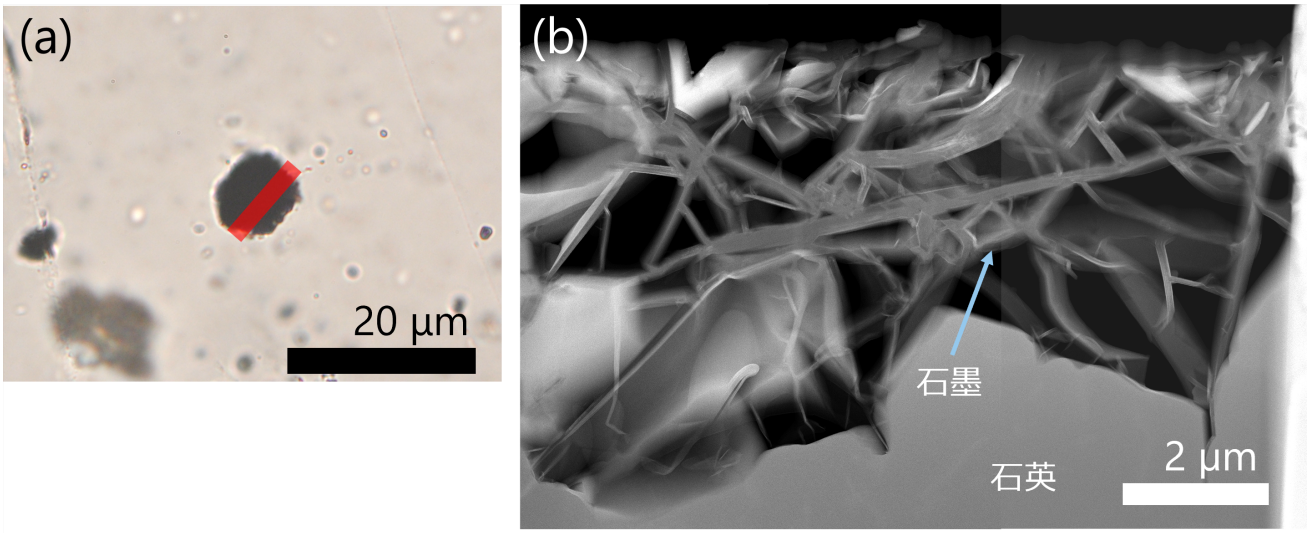


図　(a) 光学顕微鏡下で球状の外形をなす、石英粒子内の石墨 (※赤線はFIBで切り出した場所を示す)
(b) (a)から切り出した試料のTEMでのHAADF-STEM像

# Michitoshiite-(Cu), a new Ge-containing platinum group mineral from Haraigawa, Misato machi, Kumamoto Prefecture, Japan

*Takahiro TANAKA[1], Daisuke Nishio Hamane[2], Tadashi Shinmachi

1. Nittetsu Mining Co., Ltd., 2. ISSP, Univ. of Tokyo

Michitoshite-(Cu) is a new mineral of Ge-containing platinum group minerals (PGM) discovered from the Haraigawa, Kumamoto Prefecture, Japan. It is named in honor of Michitoshi Miyahisa (1928-1983), a former professor of the Ehime University. The mineral and name have been approved by the IMA Commission on New Minerals, Nomenclature and Classification (IMA2019-029a). The PGM placer deposit where the michitoshiite-(Cu) was found is located in a small stream that crossing a clinopyroxenite mass (Nishio-Hamane et al., 2019). Michitoshite-(Cu) is opaque, has a metallic luster, and is silver-gray in color. It is light gray with brownish tints and shows no pleochroism and anisotropy in reflected light. The Mohs hardness is 5, and the density calculated from the empirical formula and powder X-ray diffraction (XRD) data is 10.78 g/cm$^3$. The empirical formula is calculated on the basis of 2 apfu is $(Rh_{0.95}Pt_{0.03}Ir_{0.01})_{\Sigma 0.99}[(Cu_{0.36}Fe_{0.24})_{\Sigma 0.60}Ge_{0.41}]_{\Sigma 1.01}$. The powder XRD pattern shows five strong peaks [d in A (I/I0) hkl], 2.103 (100) 110, 1.717 (3) 111, 1.487 (15) 200, 1.332 (6) 210, 1.216 (70) 211, and can be indexed as the cubic *Pm*-3*m* (#221) with the lattice parameters a = 2.9771(11) A and V = 26.39(3) A3 (Z = 1). From previous studies, the RhCu-RhFe-RhGe system has a *face-centered cubic* (*fcc)* structure for RhCu, a CsCl-type structure for RhFe, and a MnP-type structure for RhGe, with the end-member of each compound having a different structure, but the solid solution structure has not been investigated. Since $Rh[(Cu_{0.35}Fe_{0.25})_{\Sigma 0.60}Ge_{0.40}]$, which was synthesized to mimic the empirical formula of the natural sample, had a CsCl-type structure, the crystal structure of michitoshite-(Cu) was considered to be CsCl-type. Considering that the synthetic materials of Rh(Cu,Fe) composition synthetics were not *bcc-based* crystal structures but rather *fcc* structures in the synthesis experiments, the presence of Ge is considered essential for the formation of the *bcc-based* crystal structure. Therefore, based on the relationship between composition and crystal structure obtained from the behavior of other synthetics, the ideal formula for michitoshite-(Cu) is $Rh(Cu_{1-x}Ge_x)$ $0 < x <= 0.5$.

Keywords: Michitoshiite-(Cu), Germanium, Platinum group mineral, Synthetic experiment, Kumamoto

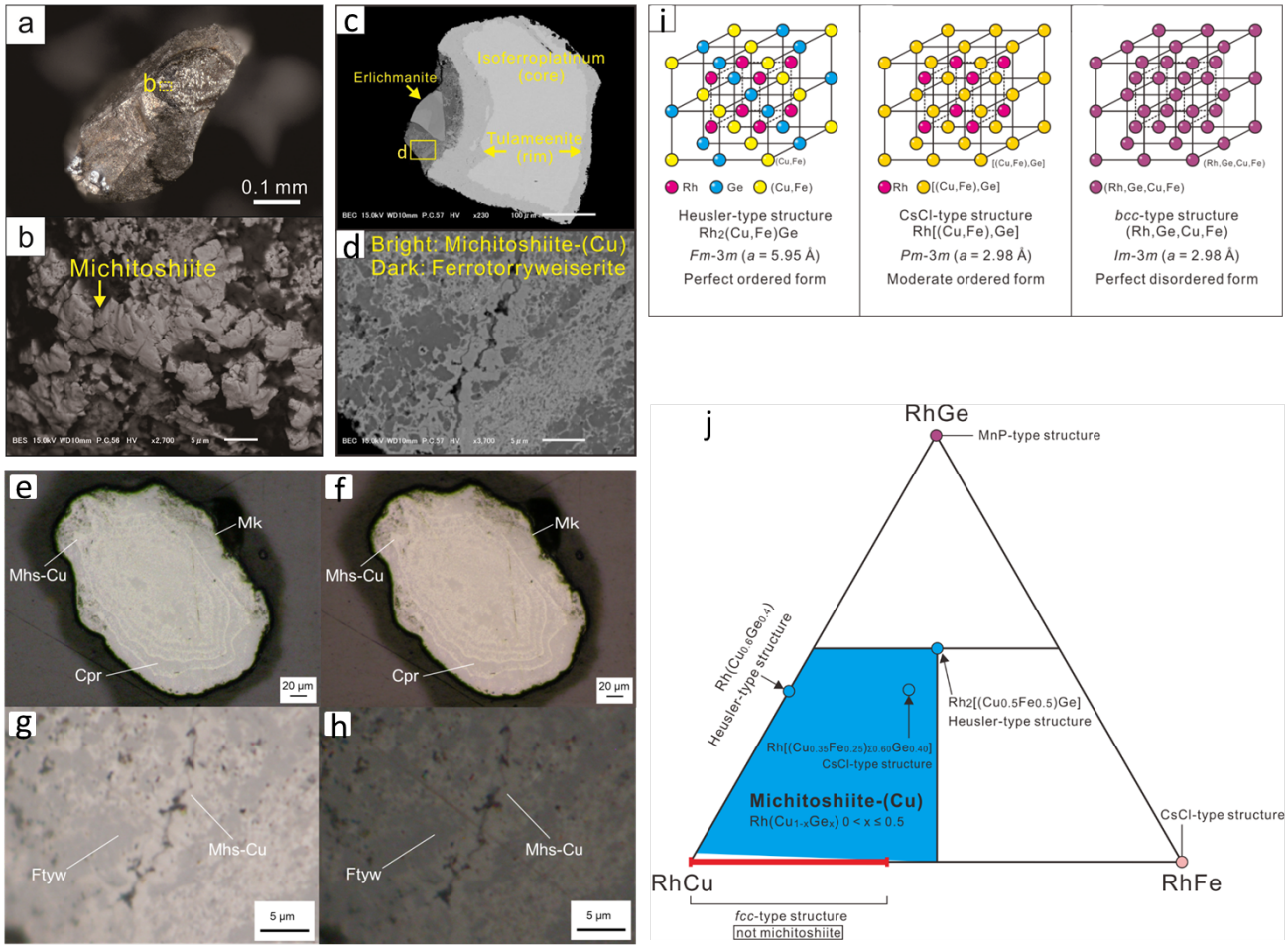


図. 三千年鉱の産状（a：写真，b：SEM像，c：BSE像，d：BSE像），三千年鉱の反射顕微鏡写真（e：オープンニコル，f：クロスニコル，g：オープンニコル，h：クロスニコル），三千年鉱の取りうる結晶構造（i），合成実験における三千年鉱の組成範囲及び固溶体の結晶構造 (j).

# Fibrous inclusions in rose quartz

*Yohei SHIROSE[1], Hayato Fudamoto[1], Sayako Inoue[2]

1. Ehime Univ. Sci., 2. Ehime Univ. GRC

Keywords: rose quartz, dumortierite, dumortierite-like mineral, pegmatite, Fukuyoshi

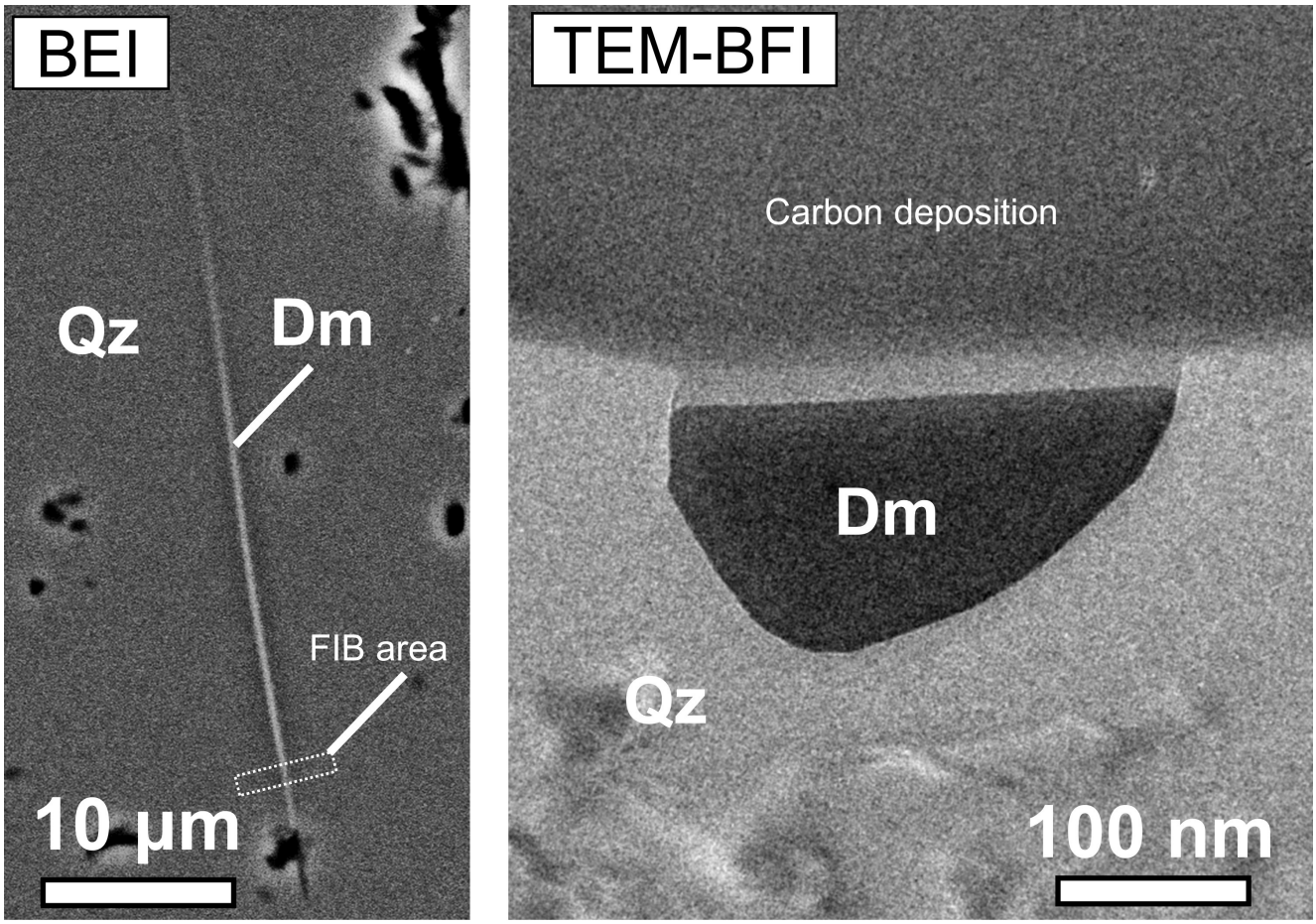


Fig. SEM-BEI and TEM-BFI of dumortierite-like fibrous inclusion (Dm) in rose quartz (Qz)

# Rose quartz in gneisses from Uoshima Island, Ehime Prefecture

*Yohei SHIROSE[1], Shoma Sakai[1]

1. Ehime Univ. Sci.

Keywords: rose quartz, gneiss, dumortierite-like mineral, Uoshima Island, boron

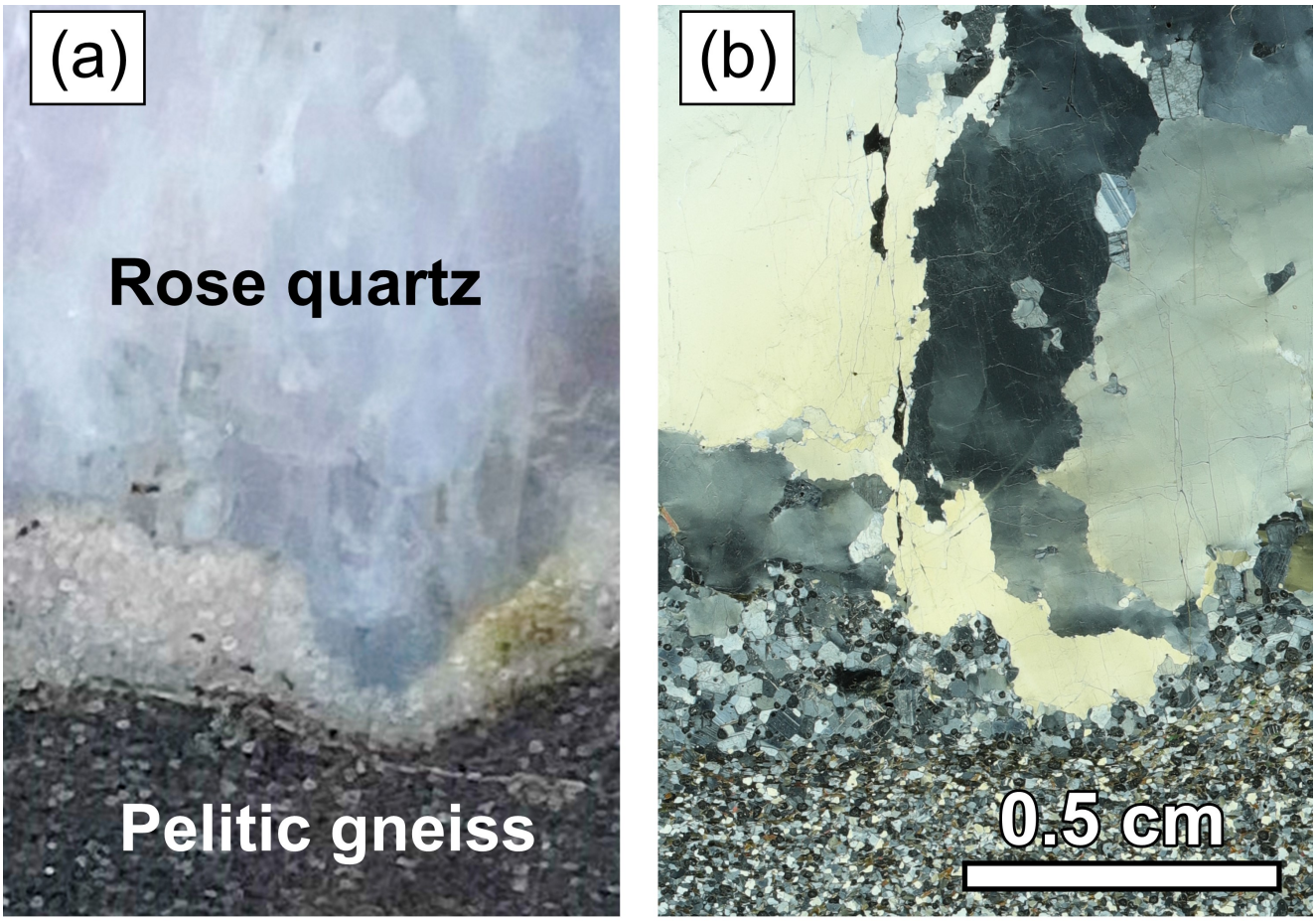


Fig. (a) Photograph and (b) crossed polarized photomicrograph of rose quartz in a gneiss from Uoshima Island.

# Secondary arsenate minerals from the Takumi Mine, Hyogo Prefecture, Japan

*Yohei SHIROSE[1], Riakako Kamise[1], Katsuichi Nishida, Yoshiteru Fujiwara

1. Ehime Univ. Sci.

Keywords: rooseveltite, parasymplesite, scorodite, bismuthinite, Takumi Mine

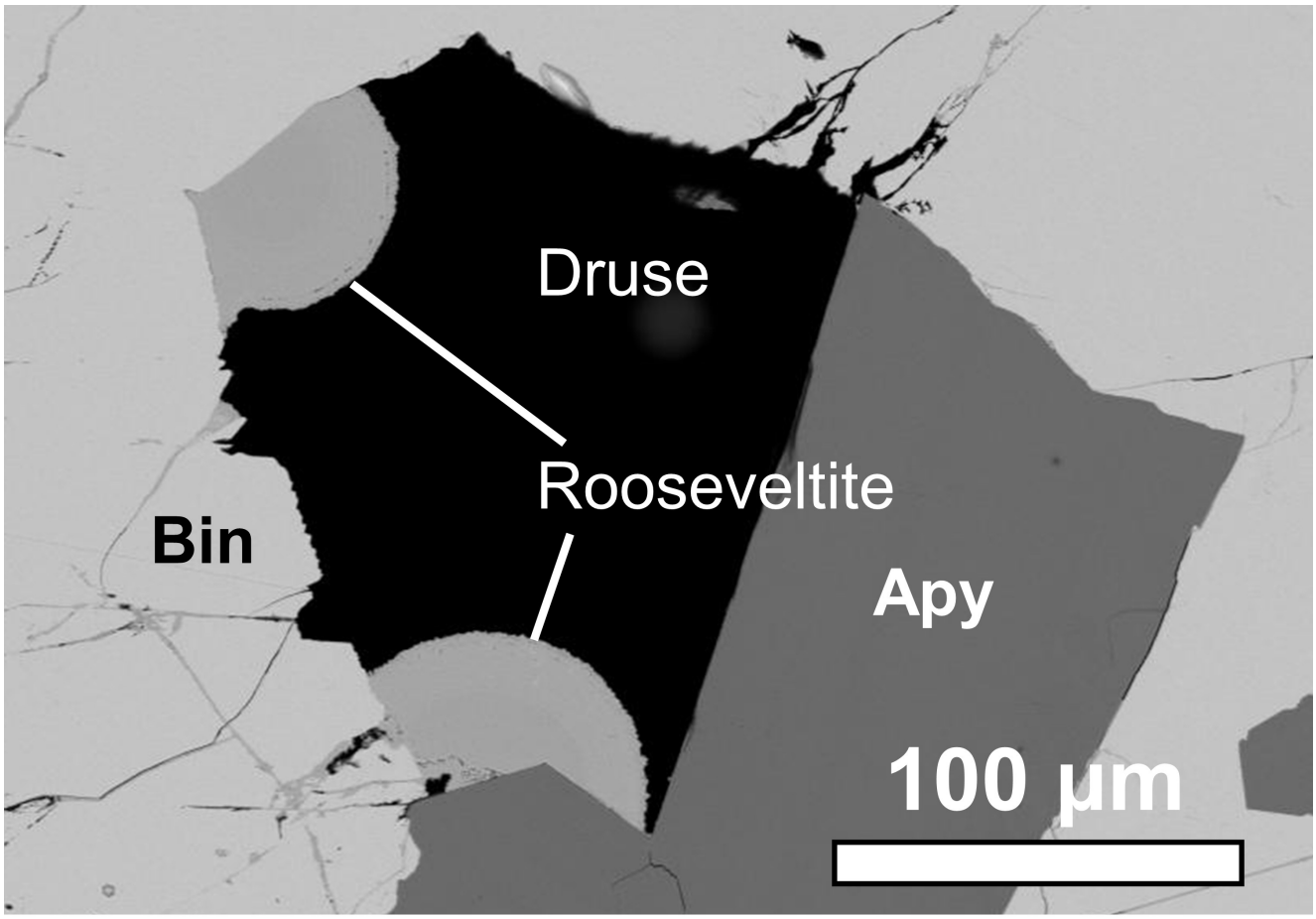


Fig. BEI of rooseveltite with bismuthinite (Bin) and arsenopyrite (Apy).

# Mineralogical properties of lautenthalite and wroewolfeite from the Nii mine, Hyogo Prefecture, Japan

*Masayuki Ohnishi, Norimasa Shimobayashi[1], Daisuke Nishio-Hamane[2], Keiji Shinoda[3], Takeshi Hisano

1. Sci., Kyoto Univ., 2. ISSP, Univ. of Tokyo, 3. Sci., Osaka Metro. Univ.

Lautenthalite and wroewolfeite have been found in the dump of the Nii mine, Hyogo Prefecture, Japan. The minerals occur in cracks of quartz containing ore minerals such as chalcopyrite, galena and sphalerite.
Lautenthalite is aggregates of platy crystals up to 0.5 mm in length and 0.1 mm in thick. Lautenthalite is always in overgrowth on wroewolfeite. The mineral is blue-green in color with a vitreous luster. It is monoclinic with unit cell parameters of $a$ = 21.557(6), $b$ = 6.019(1), $c$ = 22.467(5) Å, and $\beta$ = 108.06(3)˚. A WDS analysis yields the empirical formula (based on total cations = 7; water by stoichiometry), $(Pb_{0.97}Ca_{0.06})_{\Sigma 1.03}(Cu_{3.97}Zn_{0.11}Mn_{0.02})_{\Sigma 4.10}(SO_4)_{1.87}(OH)_{6.52}\cdot 3H_2O$.
Wroewolfeite is aggregates of platy crystals up to 1 mm in length and 0.1 mm in thick in association with langite, brochantite, linarite and cerussite. The mineral is blue in color with a vitreous luster. It is monoclinic with unit cell parameters of $a$ = 6.042(8), $b$ = 5.637(6), $c$ = 14.45(2) Å, and $\beta$ = 93.5(1)˚. A WDS analysis yields the empirical formula (based on total cations = 5; water by stoichiometry), $(Cu_{3.94}Zn_{0.04}Ca_{0.02}Fe_{0.01}Pb_{0.01}Mn_{0.01})_{\Sigma 4.04}(SO_4)_{0.96}(OH)_{6.14}\cdot 2H_2O$. Optically, the mineral is biaxial (-) with refractive indices $\alpha$ = 1.641(2), $\beta$ = 1.691(2) and $\gamma$ = 1.701(2), and $2V$ (calc.) = 47.0˚.

Keywords: Lautenthalite, Wroewolfeite, Sulfate, Nii mine

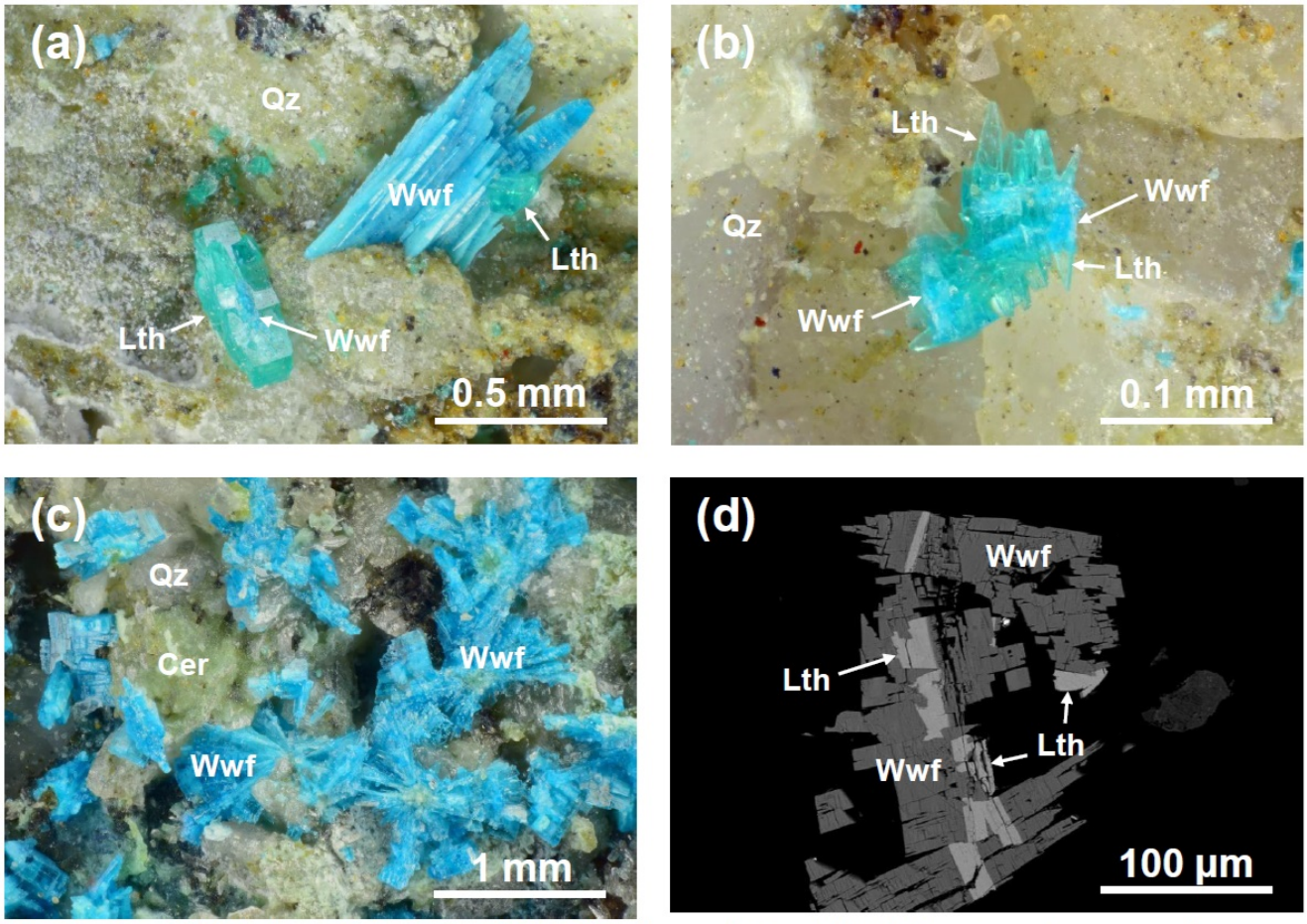


**Figure 1.** (a) and (b) Photomicrographs of aggregates of lautenthalite and wroewolfeite crystals. (c) A photomicrograph of aggregates of wroewolfeite crystals. (d) A back-scattered electron image of a polished section of lautenthalite and wroewolfeite. Abbreviations: Lth, lautenthalite; Wwf, wroewolfeite; Qz, quartz; Cer, cerussite.

# A re-examination of Sr-rich apatite from Itoigawa, Niigata Prefecture, Japan

*Seiichiro UEHARA[1], Koichi MONMA[2], Masayuki OHNISHI, Shunsuke OHSUMI, Yoshiya OHKI, Hiroki OKA[3]

1. Kyushu Univ. Museum, 2. Nat' l. Mus. Nat. Sci., 3. OYO Corp.

Keywords: Sr-apatite like mineral, OH-analog of stronadelphite, New Mineral, Omi-gawa River, Itoigawa, Niigata Prefecture, Albitite

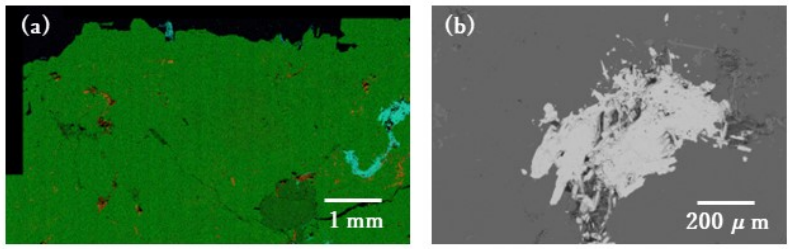


Fig. 1 SEM images of Sr-apatite ('hydroxylstronadelphite') in albitite from the Omi-gawa River, Itoigawa, Niigata Prefecture.
(a) Large area RGB X-ray mapping image (R:Ca*Kα*, G:Sr*Lα*, B:P*Kα*). Red grains are pectolite, blue grains are Sr-apatite.
(b) BSE image of Sr-apatite.

# Hydroxylchondrodite from Ogouchi ,Hinokage, Nisiusuki,Miyazaki Prefecture,Japan

*Toshiro Okada[1], Seiichiro Uehara[2], Isao Yukinori[3], Yohei Shirose[4]

1. Kashii 2 JHS, 2. Kyushu Univ, 3. Fukuoka Stc, 4. Ehime Univ

Keywords: Hydroxylchondrodite, Humite group, Phlogopite, Skarn, Ogouchi Hinokage Nisiusuki Miyazaki Prefecture

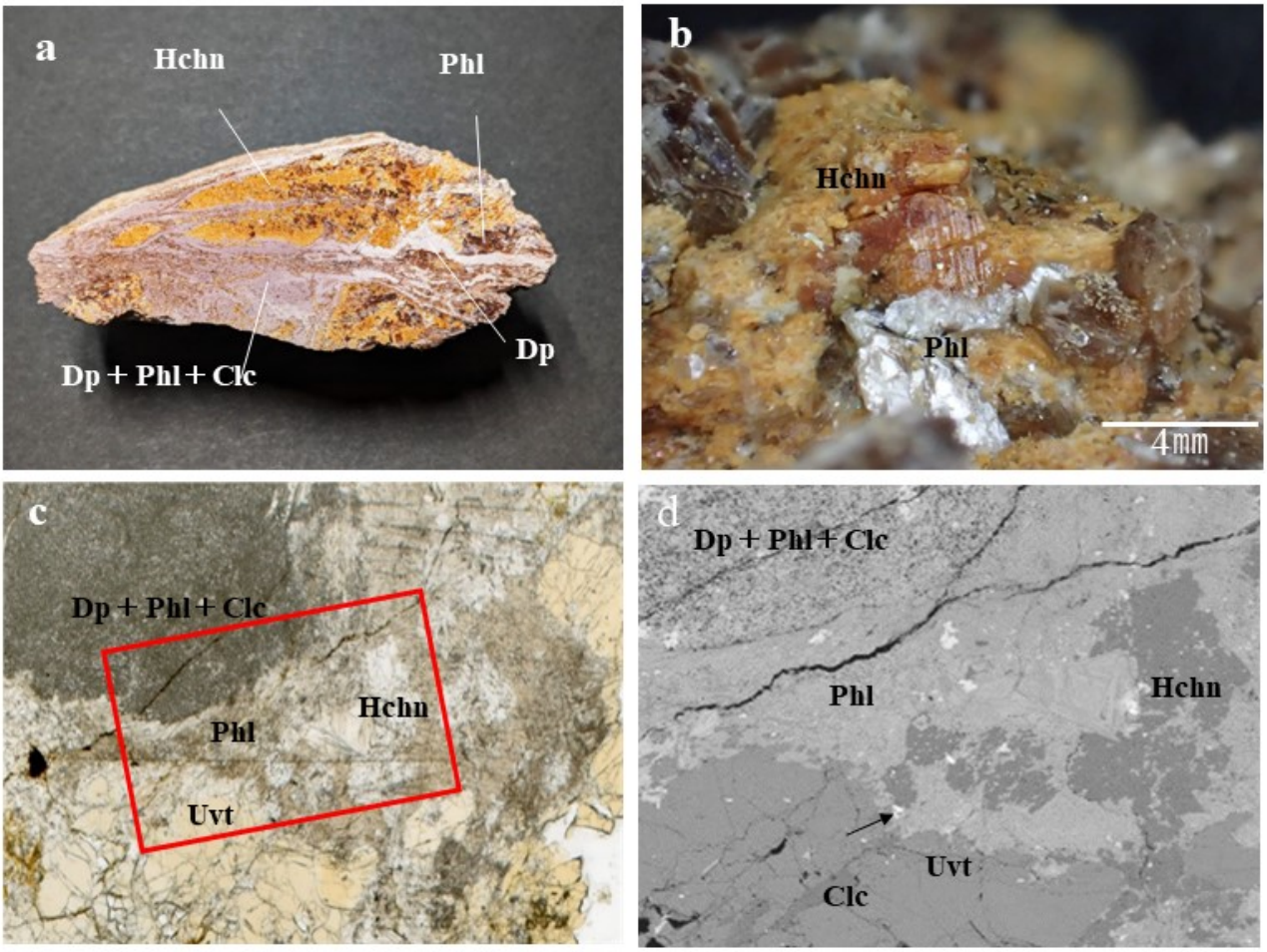


Fig. 1. Hydroxylchondrodite and associated minerals from Ogouchi, Hinokage, Nisiusuki, Miyazaki Prefecture, Japan.
(a) Sample shows occurrence of hydroxylchondrodite of sample No. SD11. Sample width is 6.2 cm.
(b) Hydroxylchondrodite crystal with phlogopite of sample No. SD11.
(c) Thin section image under plane polarized light of sample No. SD01, which contains hydroxylchondrodite, uvite, phlogopite, diopside, clinochlore and titanite. Width is 2.0 cm.
(d) Back scattered electron image of hydroxylchondrodite and associate minerals. The red frame in figure (c) corresponds to this BSE image. Darkest grains are hydroxylchondrodite and clinochlore. Small bright grains are mainly titanite some are zirconolite and apatite. Arrow indicates zirconolite.
Hchn: hydroxylchondrodite. Phl: phlogopite. Dp: diopside. Uvt: uvite. Clc:clinochlore

# Arsenmedaite from the Yamato mine, Kagoshima Prefecture, SW Japan

*Shunsuke Ohsumi, Daisuke Nishio-Hamane[1], Hiroki Oka[2], Masashi Tamura[3], Kosuke Takagi[4]

1. ISSP, Univ. of Tokyo, 2. OYO Corp., 3. Fac. Eng. Tech. Div., Mie Univ., 4. Grad. Sch. of Eng., Mie Univ.

The Yamato mine in the Amami Oshima Island, Kagoshima Prefecture, southwestern Japan, is a well-known manganese mine as the type locality of haradaite (Watanabe et al., 1982) and occurrences of V and/or As-rich minerals such as roscoelite (Yoshimura & Momoi, 1964), goldmanite (Momoi, 1964), tiragalloite (Nakao et al., 2005), palenzonaite, nabiasite, tokyoite, vuorelainenite (Yamada et al., 2008), medaite, saneroite (Matsubara et al., 2013), poppiite (Niwa & Ishibashi, 2015), and reppiaite (Yamada et al., 2018). In this study, we report the first occurrence of arsenmedaite in Japan.Arsenmedaite, $As^{5+}$-analogue of medaite, was reported in quartz veinlets cutting braunite ores from the Molinello mine, which is hosted within metacherts of the Northern Apennines. It is associated with calcite, As-rich medaite, rhodochrosite, talc, and ganophyllite.In the Yamato mine, arsenmedaite was found as from yellow to orange-reddish granular crystals, up to 1 mm in diameter, with a vitreous lustre in siliceous manganese ores, which consist mainly of massive hausmannite, rhodochrosite, and coarse-grained rhodonite, with absence of medaite. Tiny crystals of rhodonite are ubiquitously included in arsenmedaite. The occurrence of arsenmedaite in the Yamato mine differs from that in the type locality.The representative chemical composition by SEM-EDS is: $SiO_2$ 30.12, CaO 0.99, $V_2O_5$ 3.25, MnO 48.03, $As_2O_5$ 13.26, $H_2O_{calc.}$ 1.01, total 96.65 wt%, and they gave the empirical formula as $(Mn^{2+}_{6.04}Ca_{0.16})_{\Sigma 6.20}[(As_{1.03}V_{0.32})_{1.35}Si_{4.47}]_{\Sigma 5.82}O_{18}(OH)$, assuming total cations = 18 and Mn = $Mn^{2+}$. The empirical formula is slightly richer in As and V and less in Si than the ideal formula of arsenmedaite, $Mn^{2+}_6\ As^{5+}Si_5O_{18}(OH)$. Therefore, it is inferred that As and V partly substitute the Si-tetrahedral framework in arsenmedaite.Raman spectroscopy detected weak peaks at 340–360 and 994 $cm^{-1}$, moderate peaks at 644 and 658 $cm^{-1}$, and strong peaks at 859, 879, and 894 $cm^{-1}$. These Raman peaks are comparable with those of arsenmedaite (Biagioni et al., 2019) and medaite (Lafuente et al., 2015).Although a precise crystallographic analysis has not been completed yet due to its rarity and rhodonite inclusions, the occurrence of arsenmedaite possibly contributes to V/As-mineralization in the Yamato mine.

Keywords: arsenmedaite, Yamato mine

# “Common Hornblende” from Mt. Tawarayama (Goou-toge), the outer-rim of Mt. Aso, Kumamoto Prefecture

*Haruki Inoue[1], Seiichiro Uehara[2]

1. Enecom Co., Ltd., 2. Kyushu Univ. Museum

Keywords: Mt. Tawarayama, Goou-toge, magnesio-hastingsite, common hornblende

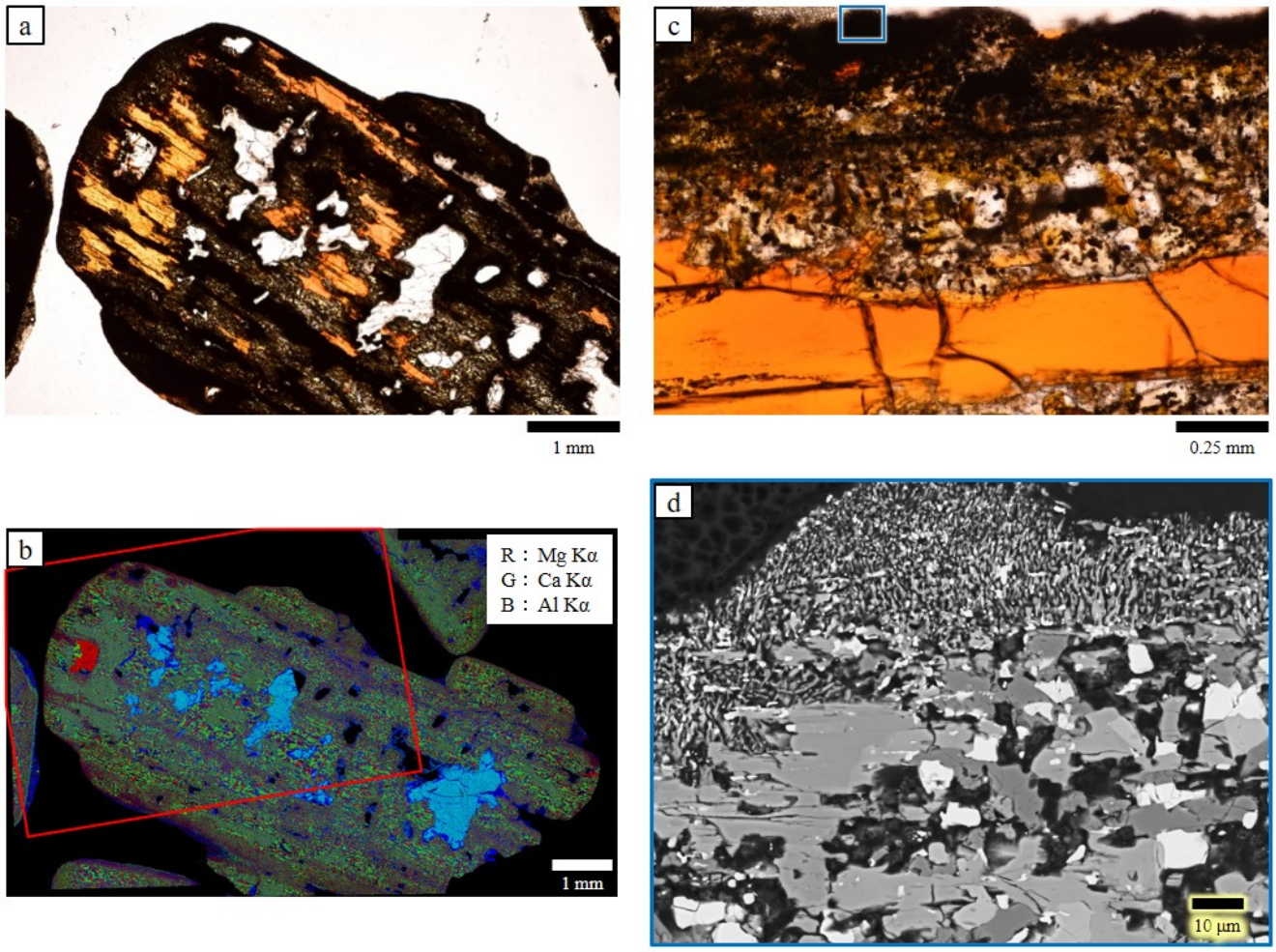


Fig.1. Polarizing microscope images and scanning electron microscope images of “Common Hornblende” from Mt. Tawarayama (Goou-toge), the outer-rim of Mt. Aso, Kumamoto Prefecture, Japan.
(a) Optical microscope image of amphibole phenocryst under plane polarized light. The cross section is parallel to the *c*-axis. (b) EDS X-ray maps of amphibole phenocryst. This image has RGB colors overlaid. The red frame indicates the area in Fig. 1a. (c) Optical microscope image of opacitization of hornblende under plane polarized light. The blue frame indicates the area in Fig. 1d. (d) BSE image of opacitization of “common hornblende”. There are microscopic minerals that cannot be observed with a polarizing microscope.

# Chemical composition of tourmaline and amphibole associated with gabbro from Kajishima, Ehime Prefecture, Japan

*Itsuki Ota[1], Kazuya Shimooka[2], satoshi saitou[1], youhei shirose[1]

1. Ehime Univ. Sci and Eng, 2. Kwansei Gakuin Univ. Sci

Keywords: kajishima, gabbro, pegmatite, tourmaline, amphibole

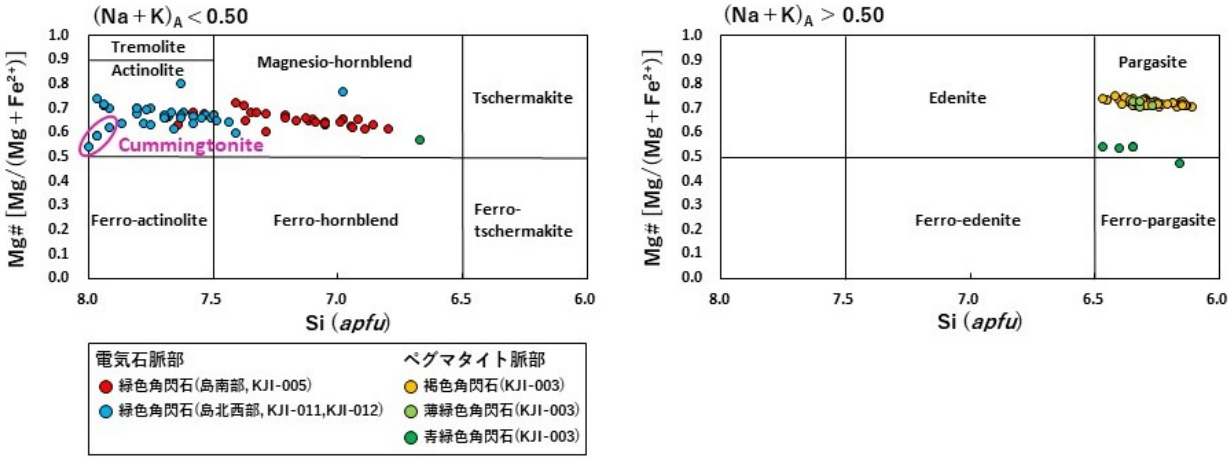


Fig. 1 角閃石の化学組成変化　(分類はHawthorne et al., 2012; Leake, 1997を参考)

# Constituent minerals of clay associated with the pegmatite dike in Nagatare, Fukuoka Prefecture, Japan

*Yuya TAKEDA[1], Seiichiro Uehara[2], Yoshihiro Kuwahara[3]

1. Kyushu Univ. ISGS, 2. Kyushu Univ. Museum, 3. Kyushu Univ. SCS

Keywords: kaoline, halloysite, nagatare

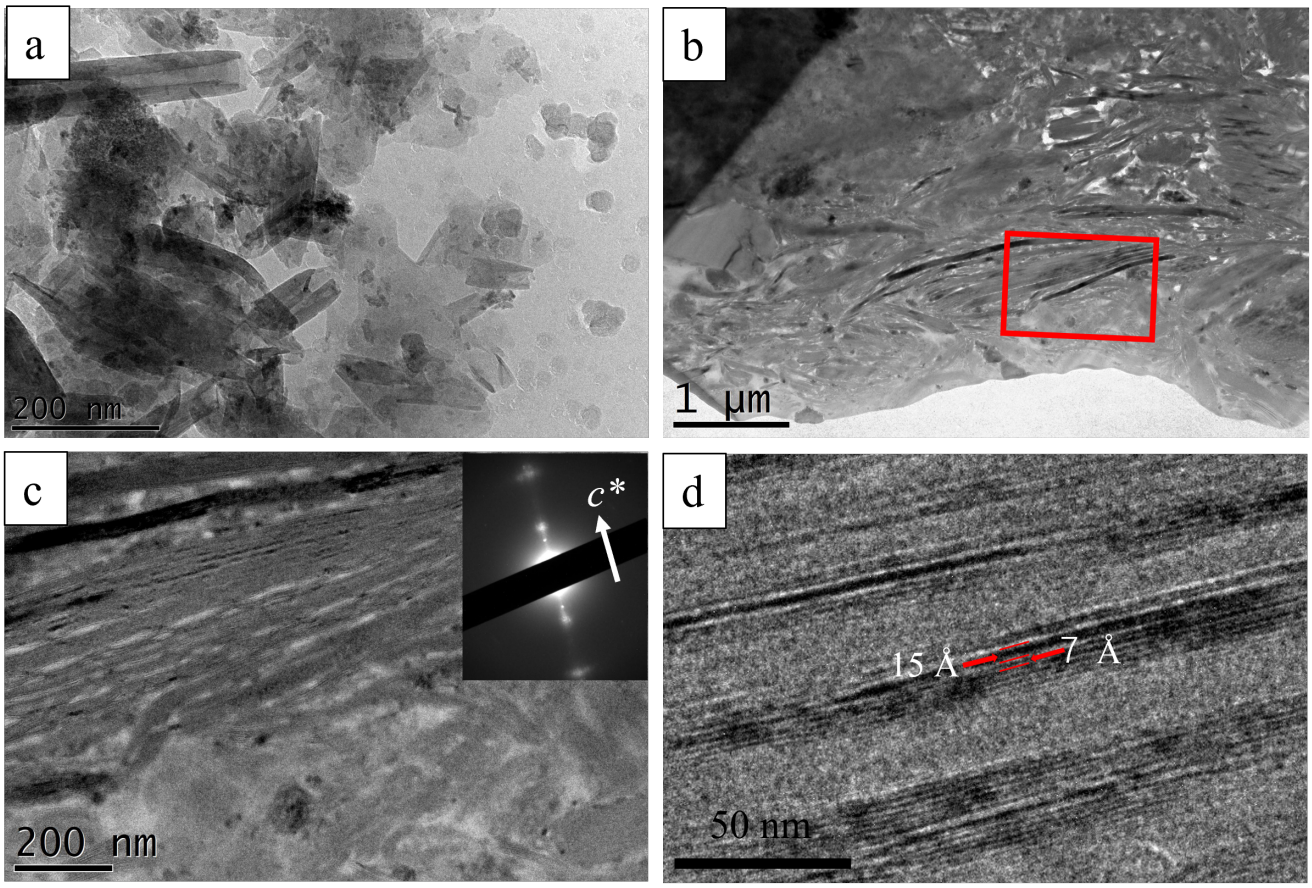


Fig. 1. Photographs of clays in Nagatare. (a) Bright field TEM image of halloysite. (b) Bright field TEM image of FIB thin section. (c) Bright field TEM image of kaolinite in the red box area of (b). (d) Enlarged TEM image of kaolinite.

# Microstructure of serpentine veins in peridotite in Ooshika Village, Nagano Prefecture, Japan

*Yuya TAKEDA[1], Yoshihiro Kuwahara[3], Seiichiro Uehara[2]

1. Kyushu Univ. ISGS, 2. Kyushu Univ. Museum, 3. Kyushu Univ. SCS

Keywords: chrysotile, serpentine vein, iron

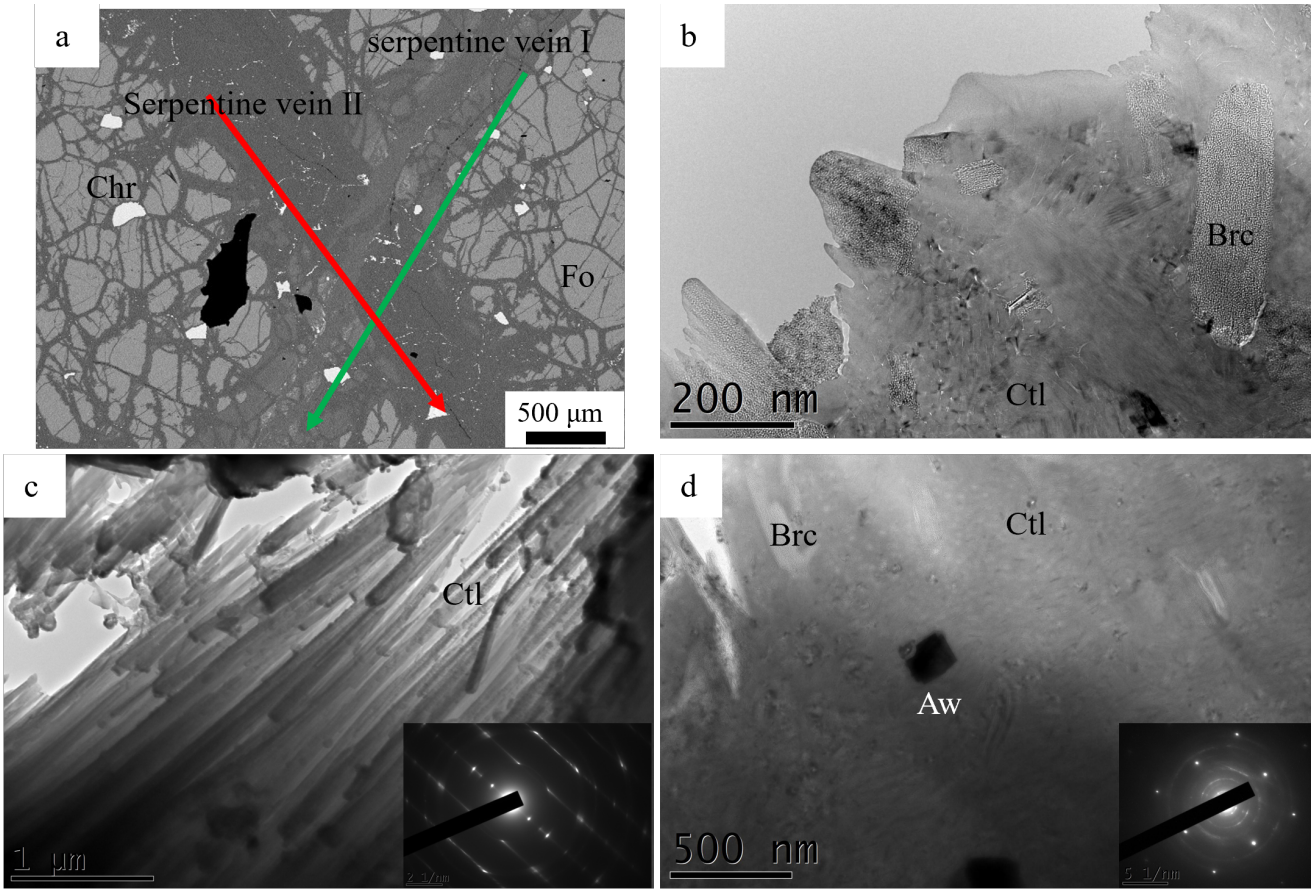


Fig. 1. Photographs of serpentine vein I and II. (a) Back scattered electron image by SEM of serpentine vein I and II. (b) Bright field TEM image of chrysotile and brucite in serpentine vein I. (c) Bright field TEM images of chrysotile and SAED pattern of chrysotile in serpentine vein II. (d) Bright field TEM images of chrysotile and brucite and awaruite in serpentine vein I. SAED pattern of awaruite.
Ctl: chrysotile. Brc: brucite. Aw: awaruite. Chr: chromite. Fo: forsterite.

Poster presentation | R3: High-pressure science and deep Earth's material

Thu. Sep 12, 2024 12:30 PM - 2:00 PM JST | Thu. Sep 12, 2024 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## R3: High-pressure science and deep Earth's material

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R3-P-01] Influence of co-existing inorganic minerals on chemical reaction of *n*-alkane under high-pressure and high-temprature conditions of subduction zone.

*Ayako SHINOZAKI[1], Kina Takimoto[1], Takaya Nagai[1], Koichi Mimura[2] (1. Hokkaido University, 2. Nagoya University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R3-P-02] Differential Scanning Calorimetry of $Mn_2SiO_4$ tephroite

*Yuta Asami[1], Itaru Ohira[2], Hiroshi Kojitani[2] (1. Gakushuin Univ. Sci, 2. Gakushuin Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R3-P-03] Ab initio calculation of the polarized IR spectra and hydrogen positions of hydrous Bridgmanite

*Kikuyo Inagaki[1], Jun Tsuchiya[1], Yanyao Zhang[3], Jung-Fu Lin[2], Shun-ichiro Karato[4], Jennifer Kung[5], ChingChien Li[5] (1. GRC Ehime Univ. , 2. Univ. Texas Austin , 3. Stanford Univ., 4. Yale Univ., 5. National Cheng Kung Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R3-P-04] Determination of the stability of silica phases under high pressure by ultra-fast X-ray diffraction measurements

*Ryosuke SINMYO[1], Saori Kawaguchi-Imada[2], Takayuki Ishii[3], Hiroshi Sakuma[4], Ayase Ogawa[1], Kenta Kobayashi[1], Shuhou Maitani[1] (1. Meiji Univ. Sci. Tech., 2. JASRI, 3. Okayama Univ. IPM, 4. NIMS)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R3-P-05] Crystallographic preferred orientation properties of Ferropericlase polycrystals obtained from large strain deformation experiments under lower mantle pressures

「発表賞エントリー」

*Bunrin Natsui[1], Shintaro Azuma[1], Keishi Okazaki[2,5], Kentaro Uesugi[3], Masahiro Yasutake[3], Saori Kawaguchi[3], Ryuichi Nomura[4], Kenji Ohta[1] (1. Tokyo Tech, 2. Hiroshima Univ., 3. JASRI, 4. Kyoto Univ., 5. JAMSTEC)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R3-P-06] Investigation of hydrogen sealing materials at high temperature and high pressure using neutron imaging

*Sho KAKIZAWA[1], Hiroyuki Kagi[2], Masahiro Takano[2], Asami Sano-Furukawa[3], Takanori Hattori[3], Abe Jun[4], Kenichi Funakoshi[4] (1. JASRI, 2. UTokyo Sci., 3. JAEA J-PARC Center, 4. CROSS, Neutron Science and Technology Center)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R3-P-07] Reactions of FeS with hydrogen at high pressure and high temperature revisited

「発表賞エントリー」

*Masahiro Takano[1], Hiroyuki Kagi[1], Yuichiro Mori[1], Katsutoshi Aoki[1], Sho Kakizawa[2], Noriyoshi Tsujino[2], Yuji Higo[2], Asami Sano-Furukawa[3] (1. UTokyo, 2. JASRI, 3. J-PARC center, JAEA)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R3-P-08] Extreme pressure generation using toroidal diamond anvil cell

*Takeshi SAKAI[1], Yuki Nakamoto[2], Satoru Nakamura[1], Sotaro Iwatsu[2], Shuto Fukuda[2], Yuki Kato[2], Katsuya Shimizu[2], Hirokazu Kadobayashi[3], Saori Kawaguchi-Imada[3] (1. GRC, Ehime University, 2. KYOKUGEN, Osaka University, 3. JASRI)

# Influence of co-existing inorganic minerals on chemical reaction of *n*-alkane under high-pressure and high-temprature conditions of subduction zone.

*Ayako SHINOZAKI[1], Kina Takimoto[1], Takaya Nagai[1], Koichi Mimura[2]

1. Hokkaido University, 2. Nagoya University

Keywords: Hydrocarbons, olivine, Gas specteometry/Mass spectroscopy , Raman, Subduction zone

# Differential Scanning Calorimetry of $Mn_2SiO_4$ tephroite

*Yuta Asami[1], Itaru Ohira[2], Hiroshi Kojitani[2]

1. Gakushuin Univ. Sci, 2. Gakushuin Univ.

Keywords: Tephroite, Heat capacity, d-orbital electrons

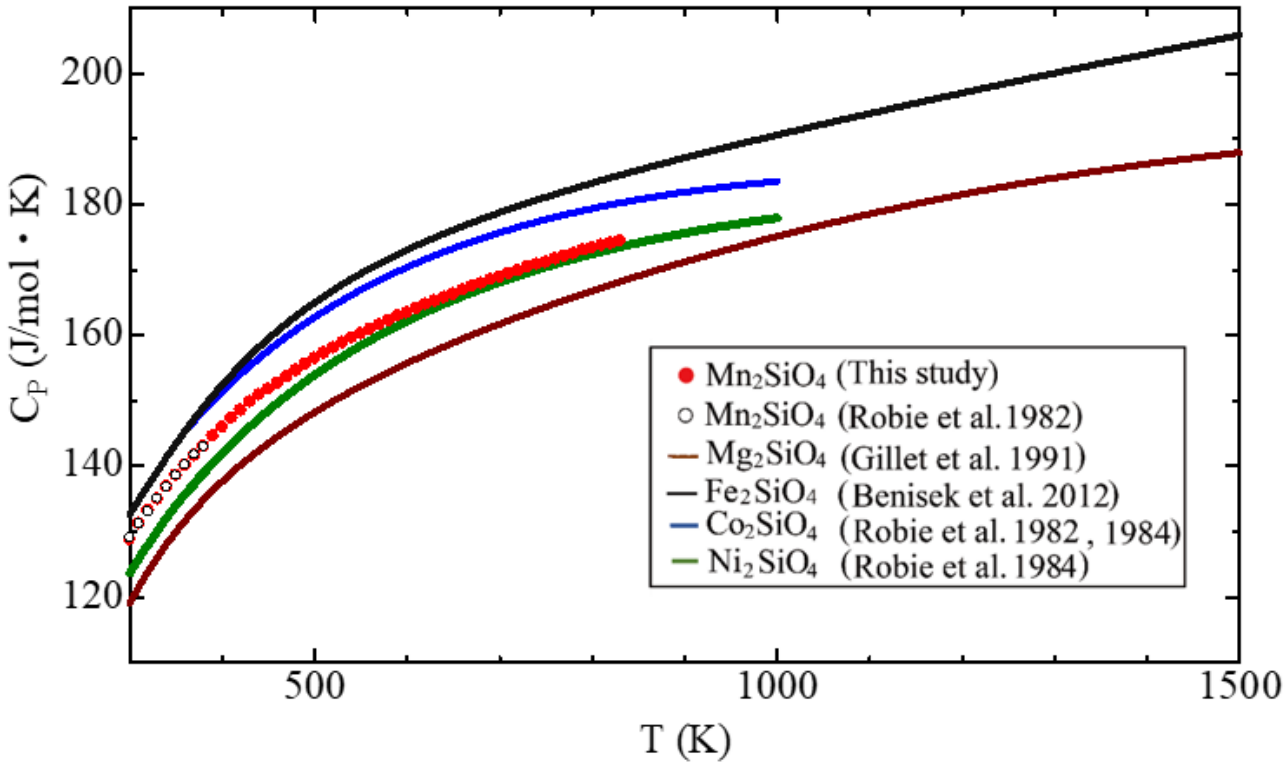


図 1.オリビン型 $M_2SiO_4$(M=Mn、Fe、Co、Ni、Mg)の定圧モル熱容量↵

# Ab initio calculation of the polarized IR spectra and hydrogen positions of hydrous Bridgmanite

*Kikuyo Inagaki[1], Jun Tsuchiya[1], Yanyao Zhang[3], Jung-Fu Lin[2], Shun-ichiro Karato[4], Jennifer Kung[5], ChingChien Li[5]

1. GRC Ehime Univ. , 2. Univ. Texas Austin , 3. Stanford Univ., 4. Yale Univ., 5. National Cheng Kung Univ.

Keywords: Bridgmanite, Hydrogen, ab initio calculation

# Determination of the stability of silica phases under high pressure by ultra-fast X-ray diffraction measurements

*Ryosuke SINMYO[1], Saori Kawaguchi-Imada[2], Takayuki Ishii[3], Hiroshi Sakuma[4], Ayase Ogawa[1], Kenta Kobayashi[1], Shuhou Maitani[1]

1. Meiji Univ. Sci. Tech., 2. JASRI, 3. Okayama Univ. IPM, 4. NIMS

Keywords: SiO2, high pressure and high temperature, X-ray diffraction measurement, seifertite

# Crystallographic preferred orientation properties of Ferropericlase polycrystals obtained from large strain deformation experiments under lower mantle pressures

*Bunrin Natsui[1], Shintaro Azuma[1], Keishi Okazaki[2,5], Kentaro Uesugi[3], Masahiro Yasutake[3], Saori Kawaguchi[3], Ryuichi Nomura[4], Kenji Ohta[1]

1. Tokyo Tech, 2. Hiroshima Univ., 3. JASRI, 4. Kyoto Univ., 5. JAMSTEC

Keywords: Rheology, Deformation experiment, Lower mantle

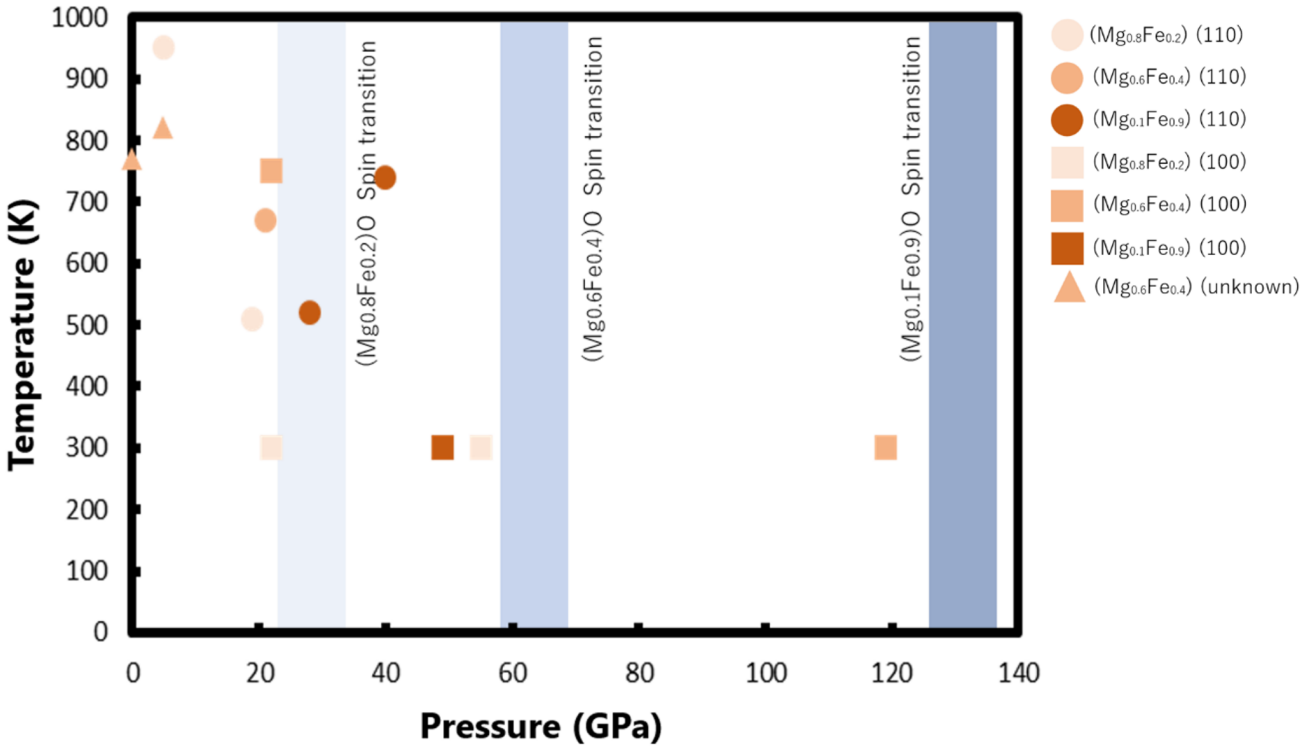


図　活性化するすべり面と温度および圧力の関係

# Investigation of hydrogen sealing materials at high temperature and high pressure using neutron imaging

*Sho KAKIZAWA[1], Hiroyuki Kagi[2], Masahiro Takano[2], Asami Sano-Furukawa[3], Takanori Hattori[3], Abe Jun[4], Kenichi Funakoshi[4]

1. JASRI, 2. UTokyo Sci., 3. JAEA J-PARC Center, 4. CROSS, Neutron Science and Technology Center

Keywords: Hydrogen, Neutron Imaging, hydrogen sealing materials

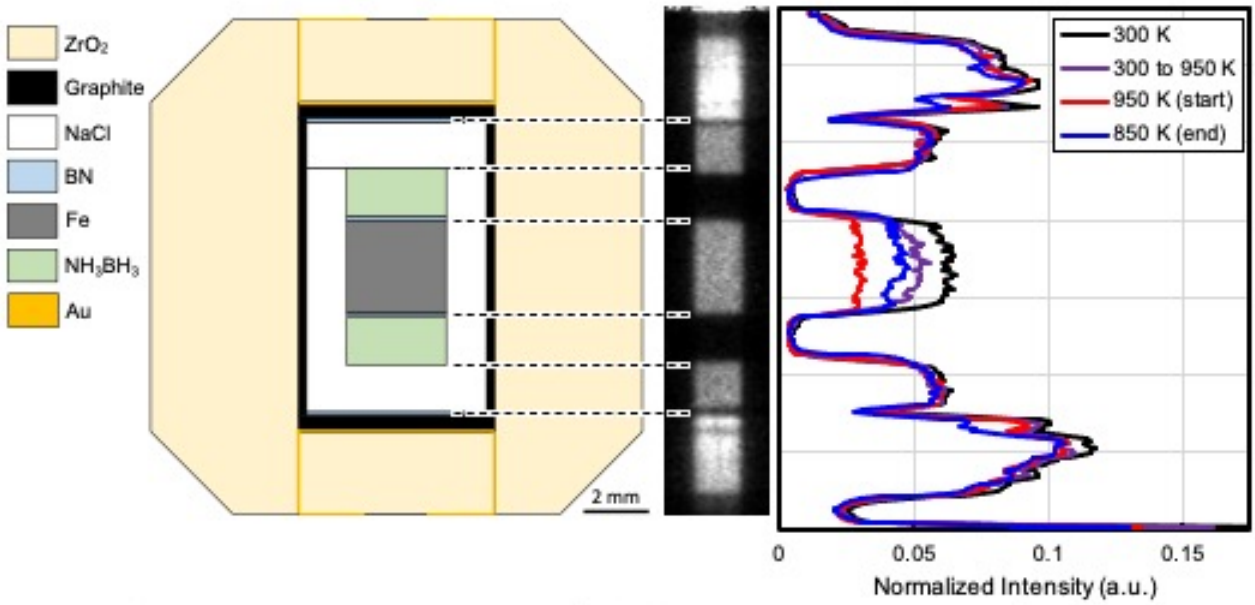


図 1：（左）使用した高圧セルおよび（右）得られた透過像および透過プロファイル

# Reactions of FeS with hydrogen at high pressure and high temperature revisited

*Masahiro Takano[1], Hiroyuki Kagi[1], Yuichiro Mori[1], Katsutoshi Aoki[1], Sho Kakizawa[2], Noriyoshi Tsujino[2], Yuji Higo[2], Asami Sano-Furukawa[3]

1. UTokyo, 2. JASRI, 3. J-PARC center, JAEA

Keywords: neutron diffraction, X-ray diffraction, FeS, hydrogenation

# Extreme pressure generation using toroidal diamond anvil cell

*Takeshi SAKAI[1], Yuki Nakamoto[2], Satoru Nakamura[1], Sotaro Iwatsu[2], Shuto Fukuda[2], Yuki Kato[2], Katsuya Shimizu[2], Hirokazu Kadobayashi[3], Saori Kawaguchi-Imada[3]

1. GRC, Ehime University, 2. KYOKUGEN, Osaka University, 3. JASRI

Keywords: Toroidal type DAC(t-DAC)

Poster presentation | T1: Comprehensive understanding of the crustal evolution and resource exploration in Asia (Symposium)

Fri. Sep 13, 2024 12:30 PM - 2:00 PM JST | Fri. Sep 13, 2024 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## T1: Comprehensive understanding of the crustal evolution and resource exploration in Asia (Symposium)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [T1-P-01] Syenitic veining at the northern Eastern Ghats Belt, India: Formation mechanism, fluid-rock interaction and a review of its economic mineral potential

*Kaushik DAS[1,5], Proloy Ganguly[2], Aparupa Banerjee[3], Sankar Bose[4,5] (1. Hiroshima University, 2. Kazi Nazrul University, 3. Shahid Matangini Hazra Government General Degree College, 4. Presidency University, 5. HiPeR, Hiroshima University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [T1-P-02] Amphibole-bearing granitic rocks in the Ereendavaa block, NE Mongolia: Insights into multi-stage magmatic sources and crystallization conditions

*Munkhdelger Bold[1], Tatsuki Tsujimori[1], Yasuhito Osanai[2], Nobuhiko Nakano[2], Tatsuro Adachi[2], Otgonbayar Dandar[1], Fransiska Ayuni Catur Wahyuandari [2] (1. Tohoku Univ., 2. Kyushu Univ)

# Syenitic veining at the northern Eastern Ghats Belt, India: Formation mechanism, fluid-rock interaction and a review of its economic mineral potential

*Kaushik DAS[1,5], Proloy Ganguly[2], Aparupa Banerjee[3], Sankar Bose[4,5]

1. Hiroshima University, 2. Kazi Nazrul University, 3. Shahid Matangini Hazra Government General Degree College, 4. Presidency University, 5. HiPeR, Hiroshima University

Extensive development of meter-to-micrometer scale felsic bands and veins at the contact between the calc-silicate granulite (clinopyroxene-plagioclase-scapolite-wollastonite-calcite-grandite garnet-titanite-apatite-quartz), charnockite (plagioclase-K-feldspar-orthopyroxene-ilmenite-quartz± garnet), and mafic granulite (clinopyroxene-orthopyroxene-plagioclase±garnet-hornblende±quartz) is observed at a 50-60 km wide area near the northern boundary (south of Mahanadi shear zone) of the Eastern Ghats Province of the Eastern Ghats Belt, India. The calc-silicate and mafic granulites witnessed HT to UHT metamorphism at ca. 1000 Ma, and two pulses of charnockite magmatism between ca. 970 Ma and 950 Ma. Clinopyroxene-bearing syenitic (clinopyroxene-K-feldspar-titanite-REE-phases-minor quartz) bands and veins occur in these rocks sometimes at the rock interface and even as a vein network inside one of the preexisting rocks. Inside the veins close to their wall clinopyroxene (+titanite) formed at the expense of orthopyroxene (+ilmenite). Anorthitic patches and myrmekite intergrowth replaced the albitic plagioclase of the wall zone of charnockite. All these reactions suggest selective mobility of at least Ca and Si in the vein with a definite gradient of these from the interior to the wall. Primary and secondary fluid inclusions in the vein mineralogy are rich in $CO_2$. Compositional variation in apatite from the host rock to the vein also shows scavenging of REE and new profuse formation of REE-rich megacrystic allanite, titanite, apatite, and zircon inside the vein. The contact rocks of charnockite show reactions of monazite to allanite, apatite, and zircon.
It seems that veins were formed by carbo-fracturing followed by metasomatism post-dating the charnockite magmatism. The nature of the fluid was possibly slightly saline, but carbonic. From our own data and that in the existing literature, we also review the economic potential of these veins.

Keywords: Carbo-fracturing, Syenite veining, Trace element mobility, Metasomatism

# Amphibole-bearing granitic rocks in the Ereendavaa block, NE Mongolia: Insights into multi-stage magmatic sources and crystallization conditions

*Munkhdelger Bold[1], Tatsuki Tsujimori[1], Yasuhito Osanai[2], Nobuhiko Nakano[2], Tatsuro Adachi[2], Otgonbayar Dandar[1], Fransiska Ayuni Catur Wahyuandari [2]

1. Tohoku Univ., 2. Kyushu Univ

The Ereendavaa block (EDB) is located along the southern part of the Mongol-Okhotsk Belt within the eastern Central Asian Orogenic Belt. The EDB has experienced multi-stage magmatism through tectonic cycles, including northward subduction of the Paleo-Asian Ocean during the early Paleozoic and southward subduction of the Mongol-Okhotsk Ocean during the early Mesozoic. However, melt evolution and magma crystallization conditions during magmatic pulses at 540, 470, and 220 Ma are poorly constrained. This study aims to elucidate magmatic crystallization conditions through mineral chemistry (EPMA) analysis of amphibole-bearing granitic rocks from these periods. The granitic rocks in the EDB typically comprise quartz, feldspar, amphibole, and mica, with accessory minerals like opaque. Compositional data for feldspar and hydrous mafic minerals (amphibole and biotite) reveal the following compositions: (1)**~540 Ma granodiorite**: orthoclase, oligoclase, pargasite, and Mg-rich biotite; (2)**~470 Ma granite**: orthoclase, oligoclase, ferro-pargasite, and Fe-rich biotite; (3)**~220 Ma granodiorite**: orthoclase, andesine-oligoclase, edenite, and Mg-rich biotite. The mineral chemistry indicates a sub-alkaline nature for the 540 and 220 Ma granodiorites, while the 470 Ma granite is alkaline. Temperature estimates, based on Ti-in-Ca amphibole geothermometer, range from 957–869˚C (540 Ma) and 918–858˚C (470 Ma), to 825–782˚C (220 Ma). Based on Al-in-Ca amphibole geobarometer, pressure estimates suggest these rocks formed at ~8–6 kbar, ~9–7 kbar, and ~4–3 kbar, respectively. Average oxygen fugacity values are -14.11 (470 Ma granite), -11.82 (540 Ma granodiorite), and -13.04 (220 Ma granodiorite). In summary, the parental magmas for the 540 Ma and 220 Ma granodiorites evolved from orogenic, calc-alkaline to sub-alkaline magmas, emplaced at middle (~26 km) and upper (~12.5 km) crustal levels. They crystallized at high (up to 957˚C) and lower temperatures (up to 825˚C) under oxidizing conditions. The 470 Ma granitoid likely evolved from more alkaline magmas, emplaced at deep crustal levels (~29 km) approaching the lower crust, and crystallized at high temperatures (up to 918˚C) under more reducing conditions than the 540 Ma and 220 Ma granodiorites.

Keywords: CAOB, geothermobarometer, EPMA

Poster presentation | S2: Water Rock Interaction (Special Session)

Fri. Sep 13, 2024 12:30 PM - 2:00 PM JST | Fri. Sep 13, 2024 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## S2: Water Rock Interaction (Special Session)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S2-P-01] Scales of extensional-shear fracturing and magnitudes of seismicity induced by magma intrusions into lower crust: Scale comparisons of dike swarm in the high-grade metamorphic rocks and deep low-frequency earthquakes

「発表賞エントリー」

*Takumi Nara[1], Masaoki Uno[1], Tetsuo Kawakami[2], Fumiko Higashino[2], Tatsuro Adachi[3], Noriyoshi Tsuchiya[1,4] (1. TOHOKU Univ. Env., 2. Kyoto Univ. Sci, 3. Kyushu Univ. Soc., 4. Hachinohe Kosen)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S2-P-02] Carbonation of serpentinite and formation process of listvenite from Urayama River, Shikokuchuo City, Ehime Prefecture, Japan

「発表賞エントリー」

*Hikaru Takagaki[1], Yohei Shirose[1] (1. Ehime Univ. Sci.&Egn.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S2-P-03] Texture transition during serpentinization in Hodono, Ehime Prefecture

「発表賞エントリー」

*Hinano Wada[1], Enju Satomi[1] (1. Ehime Univ. S/E)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S2-P-04] Water-rock interaction recorded in episyenites from Hakatajima Island, Ehime Prefecture

「発表賞エントリー」

*Toko FUKUI[1], Kazuya SHIMOOKA[2], Toshiro TAKAHASHI[3], Satoshi SAITO[1] (1. Ehime Univ., 2. Kwansei Gakuin Univ., 3. Niigata Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[S2-P-05] Mechanisms of Reaction-Induced Fracturing in Serpentinite Carbonation; Insights from Hydrothermal Experiments and Geochemical Modeling

「発表賞エントリー」

*Taiki Taiki[1], Masaoki Uno[1], Atsushi Okamoto[1] (1. Tohoku University)

# Scales of extensional-shear fracturing and magnitudes of seismicity induced by magma intrusions into lower crust: Scale comparisons of dike swarm in the high-grade metamorphic rocks and deep low-frequency earthquakes

*Takumi Nara[1], Masaoki Uno[1], Tetsuo Kawakami[2], Fumiko Higashino[2], Tatsuro Adachi[3], Noriyoshi Tsuchiya[1,4]

1. TOHOKU Univ. Env., 2. Kyoto Univ. Sci, 3. Kyushu Univ. Soc., 4. Hachinohe Kosen

Keywords: volcanic earthquakes, magma intrusion, Antarctica

# Carbonation of serpentinite and formation process of listvenite from Urayama River, Shikokuchuo City, Ehime Prefecture, Japan

*Hikaru Takagaki[1], Yohei Shirose[1]

1. Ehime Univ. Sci.&Egn.

Keywords: listvenite, antigorite, carbonation, serpentinite, Urayama River

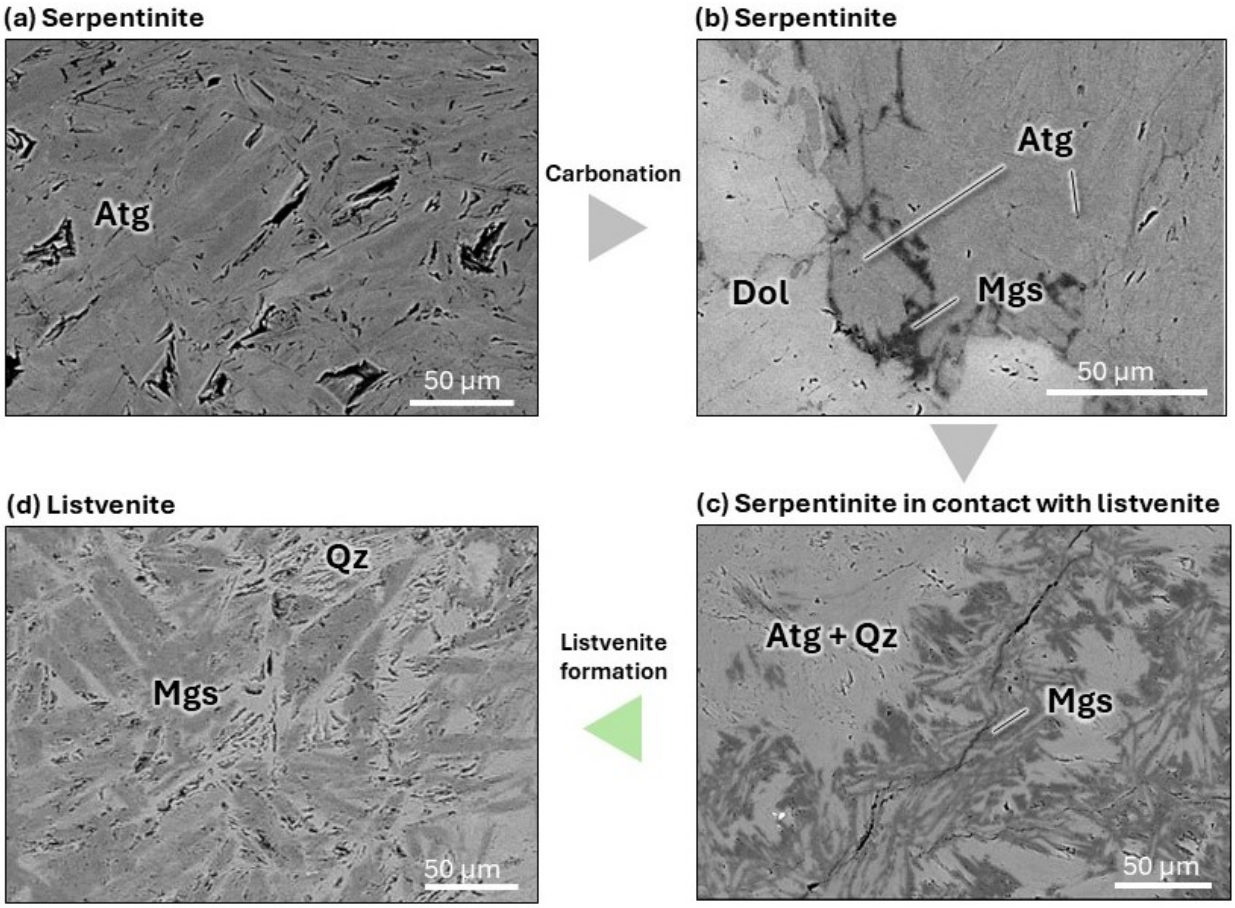


Figure. Carbonation and listvenite formation from serpentinite.
BSE images of (a) serpentinite, (b) carbonated serpentinite,
(c) carbonated serpentinite in contact with listvenite, (d) listvenite.
Atg : antigorite, Qz : quartz, Mgs : magnesite, Dol : dolomite.

# Texture transition during serpentinization in Hodono, Ehime Prefecture

*Hinano Wada[1], Enju Satomi[1]

1. Ehime Univ. S/E

Keywords: peridotite, serpentinite, antigorite, Higashi-akaishi peridotite body

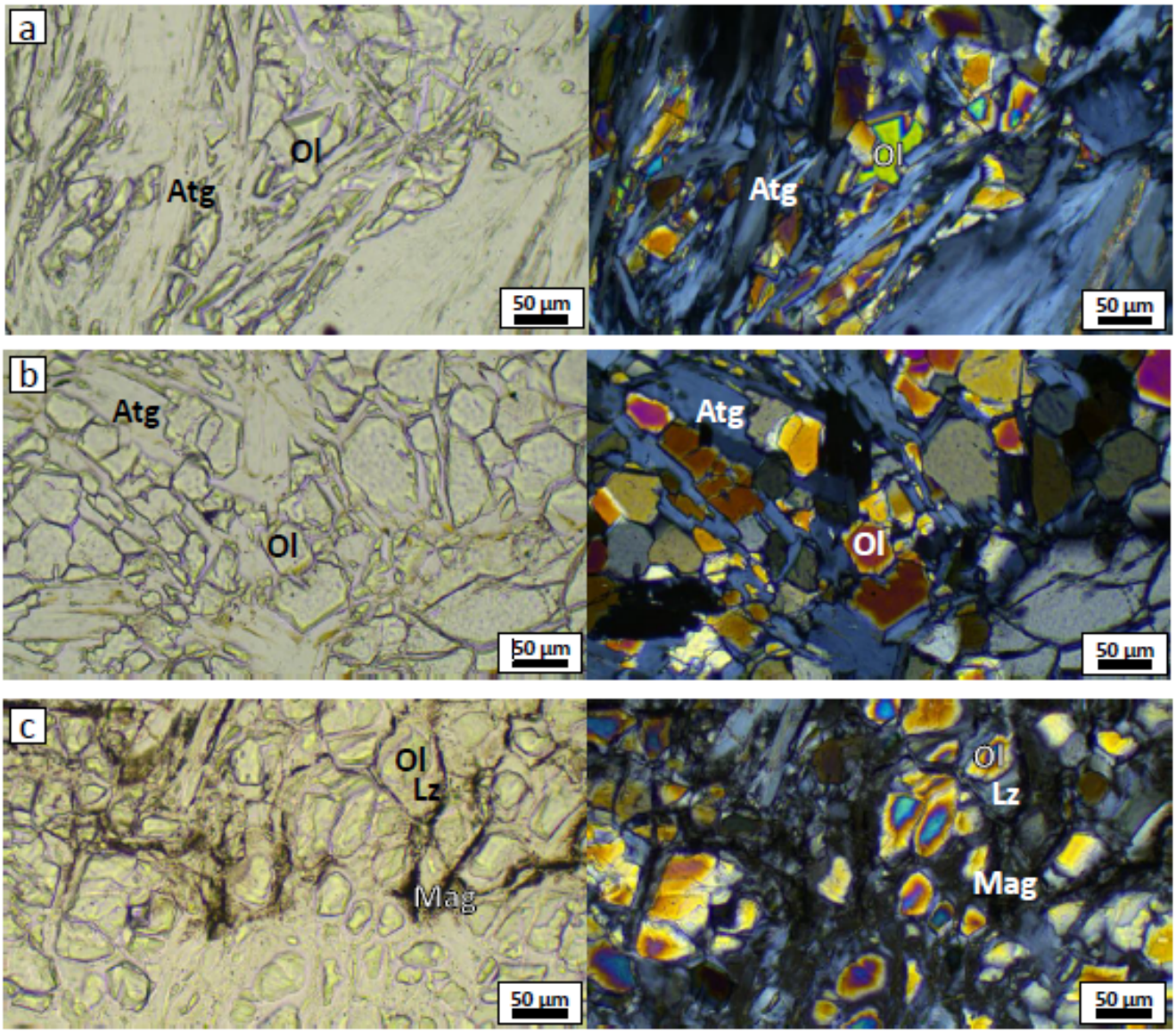


図1 ：試料中に含まれる蛇紋石とかんらん石の共存組織 (左 オープンニコル, 右 クロスニコル), (a)直線的な輪郭を持つくさび状-板状のかんらん石と短冊状アンチゴライト, (b)曲線的な輪郭を持つ粒状のかんらん石と短冊状アンチゴライト, (c)メッシュ組織のコアとして存在するかんらん石とリザーダイトリム
Ol：かんらん石, Atg：アンチゴライト, Lz：リザーダイト, Mag：磁鉄鉱

# Water-rock interaction recorded in episyenites from Hakatajima Island, Ehime Prefecture

*Toko FUKUI[1], Kazuya SHIMOOKA[2], Toshiro TAKAHASHI[3], Satoshi SAITO[1]

1. Ehime Univ., 2. Kwansei Gakuin Univ., 3. Niigata Univ.

Keywords: Episyenite, metasomatism, Hakatajima Island

# Mechanisms of Reaction-Induced Fracturing in Serpentinite Carbonation; Insights from Hydrothermal Experiments and Geochemical Modeling

*Taiki Taiki[1], Masaoki Uno[1], Atsushi Okamoto[1]

1. Tohoku University

Keywords: Carbonation, Carbon Mineralization, Serpentinite, Reaction-induced fracturing

Poster presentation | R4: Mineral sciences of the Earth surface

Fri. Sep 13, 2024 12:30 PM - 2:00 PM JST | Fri. Sep 13, 2024 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## R4: Mineral sciences of the Earth surface

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R4-P-01] Design and synthesis of aragonite particles as a reinforcement of plastic materials

*Hiroshi SAKUMA[1], Shigeru SUEHARA[1], Masumi KAMON[1], Kenji TAMURA[1] (1. NIMS)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R4-P-03] Experiments on the Inhibitory Effect of Polysaccharides on Cation Ordering of Dolomite During Dolomitization Reaction at 200°C: Preliminary Results

Hiromi KONISHI[1], *Yao Chen[1] (1. Niigata Univ. Sci.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R4-P-04] Formation Process of Carbonate Minerals in Non-aqueous Solvents: Consideration of the Effects of Different Hydration States of Cations

Naoki IWANE[1], *Jun KAWANO[1], Hiroyuki KAGI[2], Ayako SHINOZAKI[1], Takaya NAGAI[1] (1. Hokkaido Univ. Sci., 2. UTokyo Sci.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R4-P-05] Impact of evaporation on CO2 mineralization during enhanced rock weathering

*Naoki NISHIYAMA[1], Masao SORAI[1], Keisuke FUKUSHI[2], Yuto NISHIKI[1] (1. National Institute of Advanced Industrial Science and Technology (AIST), 2. Kanazawa University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R4-P-06] Framboidal pyrite in modern stromatolite from Fukiage-Jigoku, Onikobe Spring, Miyagi, Japan

「発表賞エントリー」

*Tatsuya Kamada[1], Hiroaki Ohfuji[1] (1. Tohoku Univ. Sci.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R4-P-07] Observations of nano-texture for amosite asbestos by using high-resolution STEM imaging

*Hayato Miura[1], Ichiro Ohnishi[1] (1. JEOL Ltd.)

# Design and synthesis of aragonite particles as a reinforcement of plastic materials

*Hiroshi SAKUMA[1], Shigeru SUEHARA[1], Masumi KAMON[1], Kenji TAMURA[1]

1. NIMS

Keywords: Calcium carbonate, Elastic modulus, Aspect ratio, Carbon dioxide

# Experiments on the Inhibitory Effect of Polysaccharides on Cation Ordering of Dolomite During Dolomitization Reaction at 200˚C: Preliminary Results

Hiromi KONISHI[1], *Yao Chen[1]

1. Niigata Univ. Sci.

Dolomite is a mineral that consists of calcium-magnesium carbonate, with the chemical formula CaMg(CO3)2. The "dolomite problem" pertains to the challenge of understanding the significant variability in dolomite production over geological time periods and the difficulty of replicating dolomite formation under lab conditions, even though it has been found in surface environments in the past (e.g., Warren 2000). Recent research has shown that polysaccharides such as carboxymethyl cellulose (CMC), agar, and biomass can promote the formation of disordered dolomite at room temperature (e.g., Zhang et al., 2015; 2021). However, Wei and Konishi (submitted) discovered that CMC and agar inhibit the dolomitization reaction at 200˚C, although the impact on cation ordering was not clear.

In our study, we are examining the impact of CMC on cation ordering during the dolomitization reaction at 200˚C. The experiment involved heating two sets of solutions for varying durations. Both sets had a fixed concentration of Mg and Ca cations at 0.5M and a carbonate ion concentration of 0.1M. One set included 0.2g/L CMC, while the other set did not for comparison. The pH of the solutions was adjusted to 8 before heating. We measured the change in the ratio of 015 peak intensity to 110 peak intensity with different heating durations, which serves as an ordering index indicating the Ca and Mg ordering state in the dolomite structure. In 13 durations of the experiment, 6 showed significantly lower ordering index values with CMC, 6 had similar values, and 1 was higher without CMC. Overall, the trend indicated that the presence of CMC resulted in a lower ordering index in dolomite, suggesting an inhibitory effect on cation ordering.

Keywords: dolomite, Polysaccharides, dolomitization, Inhibitory Effect

# Formation Process of Carbonate Minerals in Non-aqueous Solvents: Consideration of the Effects of Different Hydration States of Cations

Naoki IWANE[1], *Jun KAWANO[1], Hiroyuki KAGI[2], Ayako SHINOZAKI[1], Takaya NAGAI[1]

1. Hokkaido Univ. Sci., 2. UTokyo Sci.

Keywords: calcium carbonate, hydration, polymorph, amorphous

# Impact of evaporation on CO2 mineralization during enhanced rock weathering

*Naoki NISHIYAMA[1], Masao SORAI[1], Keisuke FUKUSHI[2], Yuto NISHIKI[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), 2. Kanazawa University

Keywords: Enhanced rock weathering, CO2 mineralization, Evaporation, Mafic rock, Dissolution

# Framboidal pyrite in modern stromatolite from Fukiage-Jigoku, Onikobe Spring, Miyagi, Japan

*Tatsuya Kamada[1], Hiroaki Ohfuji[1]

1. Tohoku Univ. Sci.

Keywords: Framboidal pyrite, stromatolite

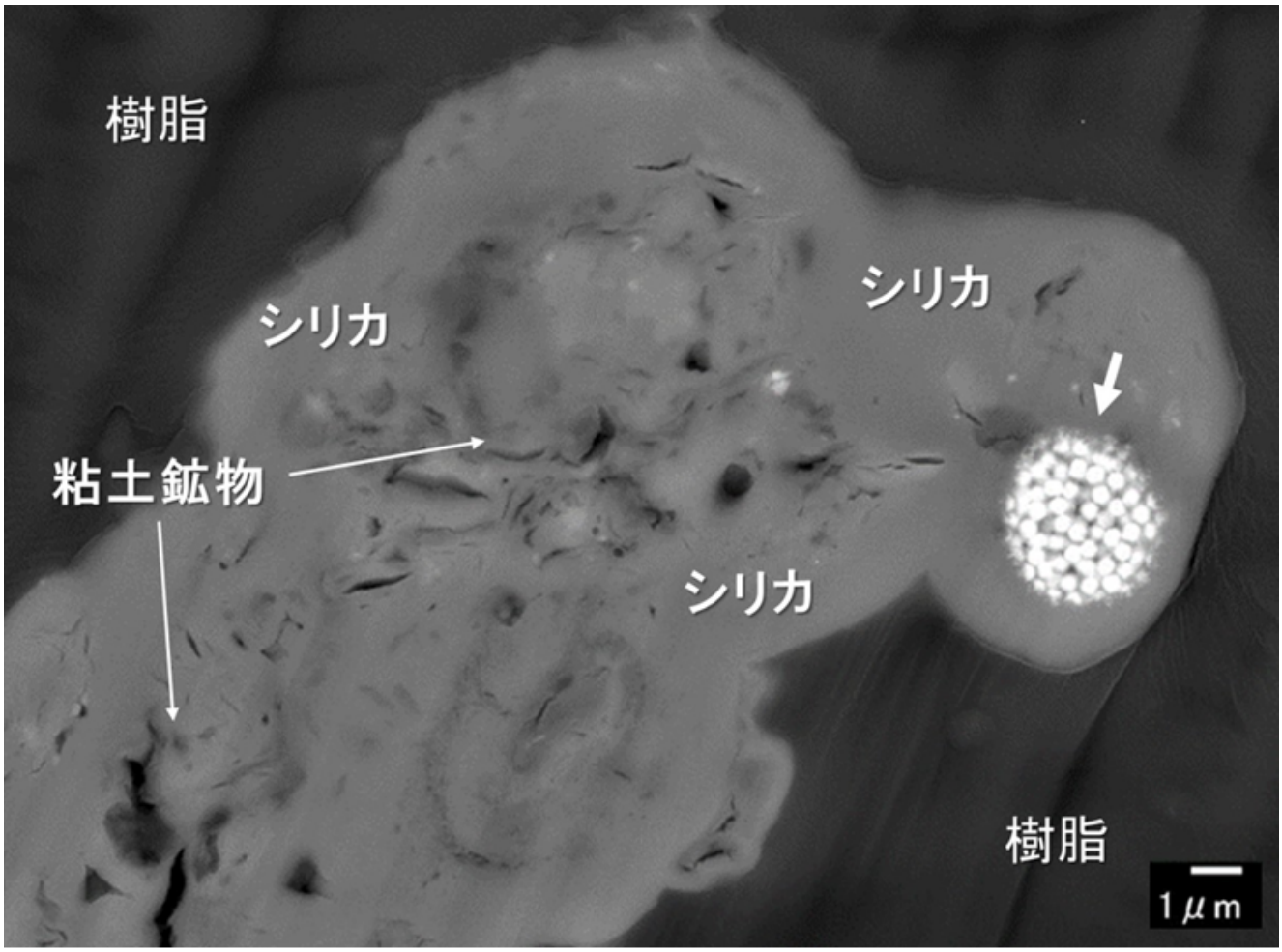


Figure. 1 Framboidal pyrite enclosed in amorphous silica (opal) in a modern stromatolite from Fukiage-onsen as indicated by the arrow

# Observations of nano-texture for amosite asbestos by using high-resolution STEM imaging

*Hayato Miura[1], Ichiro Ohnishi[1]

1. JEOL Ltd.

Keywords: Asbestos, TEM, STEM

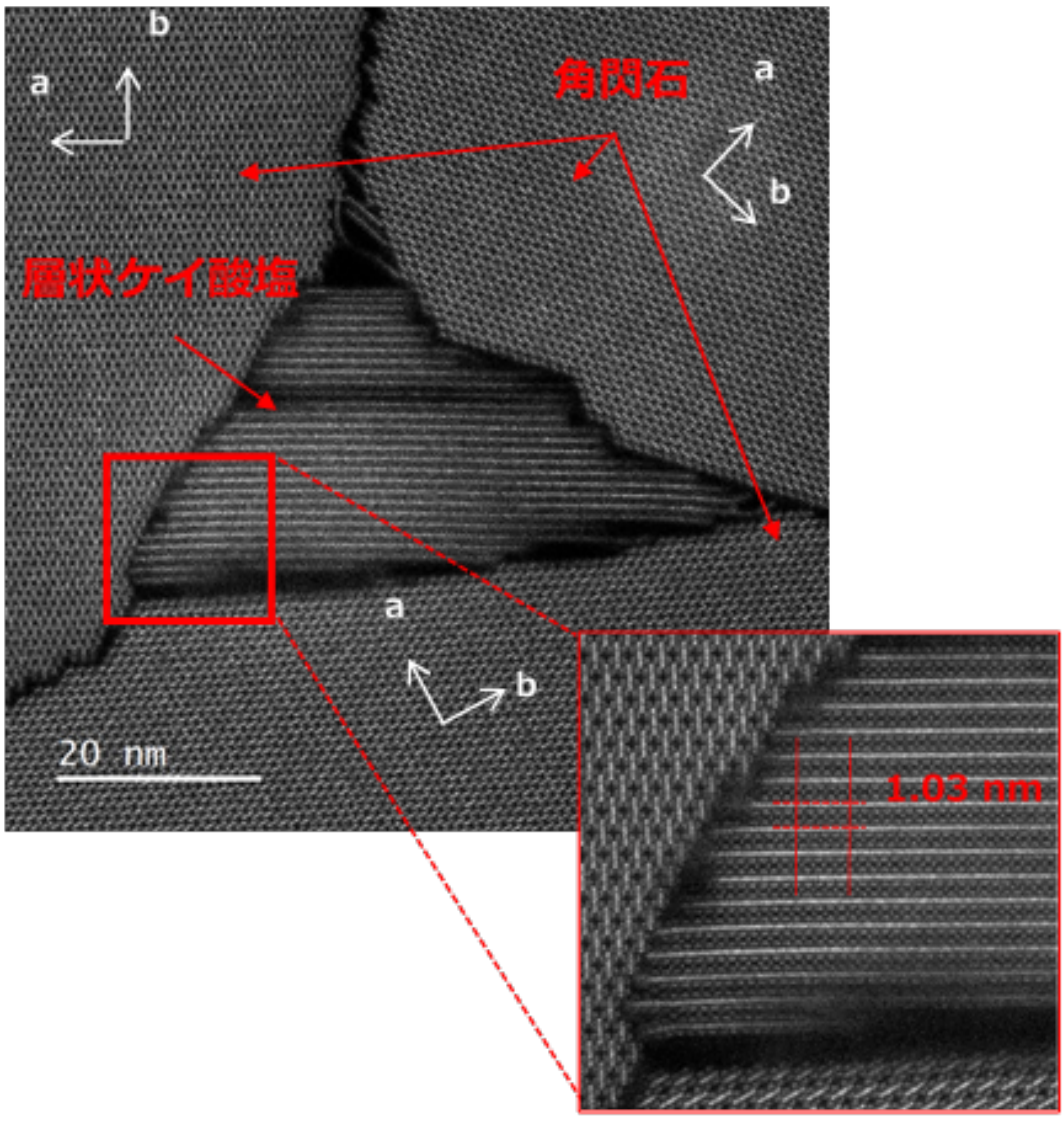


図 1 アモサイト石綿中に存在する層状ケイ酸塩の高分解能 ADF-STEM 像

Poster presentation | R7: Petrology, Mineralogy and Economic geology (Joint Session with Society of Resource Geology)

Fri. Sep 13, 2024 12:30 PM - 2:00 PM JST | Fri. Sep 13, 2024 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## R7: Petrology, Mineralogy and Economic geology (Joint Session with Society of Resource Geology)

岩石学，鉱物学，鉱床学，地球化学などの分野をはじめとして，地球・惑星物質科学全般にわたる岩石及び鉱物に関する研究発表を広く募集する。地球構成物質についての多様な研究成果の発表の場となることを期待する。

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R7-P-01] Ezochiite and placer deposit of platinum group minerals in northwestern Hokkaido, Japan

*Daisuke HAMANE[1], Katsuyuki Saito (1. The University of Tokyo)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R7-P-02] Review for Mineralogical Science: Mineral Resources, Heritage Stone, and SDGs

*Yuhei Takahashi[1] (1. NUE)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R7-P-03] Formation process of olivine with remarkable parting and apparently oblique extinction in the lherzolite of Ochiai-Hokudo peridotite complex, Okayama Prefecture, Japan

*Terumi EJIMA[1], Takashima Chihiro[2], Arai Shoji[3] (1. Shinshu University, 2. DAIYA SEIKI Co., Ltd., 3. Kanazawa University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R7-P-04] The effect of Na ion on carbonation reaction of forsterite

*Hiroki Hasegawa[1], Atsushi Kyono[2], Satoru Okada[1], Kosuke Yamaguchi[1] (1. Univ of Tsukuba, Grad. sch. of Life and Environmental. Sci, 2. Univ of Tsukuba, Life and Environmental Science)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R7-P-05] Mineralogical characteristics of Pothole Reef and Pseudo Merensky Reef at the western limb of the Bushveld Complex, South Africa

「発表賞エントリー」

*Amu Umesato[1], Takuya Echigo[1], Yasushi Watanabe[1] (1. Akita Univ. Int.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R7-P-06] High-Ti biotite in the alkali volcanic rock from the Akiyoshi Belt and its significance

*Kosuke Kimura[1], Kaushik Das[2], Yasutaka Hayasaka[3] (1. Osaka Metro. Univ. Sci., 2. Hiroshima Univ., 3. Amakusa Mus. Goshoura Dinosaur Isl.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R7-P-07] Estimation of the origin of SDW in the Horoman peridotite complex by analysis of micro-inclusions in the olivine

「発表賞エントリー」

*Masaharu Aketa[1], Akira Miyake[1], Norikatsu Akizawa[2], Megumi Matsumoto[3], Yohei Igami[1], Itaru Mitsukawa[1] (1. Kyoto University, 2. University of Tokyo, 3. Tohoku University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R7-P-08] Fe-Ni-S-As minerals in the Imono peridotite body, Besshi area, Niihama city, Ehime prefecture.

「発表賞エントリー」

*Masato Kuniyoshi[1], Satomi Enju[1] (1. Ehime Univ.Sci and Eng.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-09] Fluorite mineralization associated with alkaline metasomatism in the Jinmu-Mihara deposit, Hiroshima, Japan.

「発表賞エントリー」

*Masahiro SUNADA[1], Takuya Echigo[1], Yasushi Watanabe[1] (1. Akita Univ. IRS.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-10] Petrological study of ultramafic rocks from the Kiyama area, eastern Kumamoto City

Narumichi Nishio[1], *Satoko ISHIMARU[2] (1. Kumamoto Univ. Sci., 2. Kumamoto Univ. FAST)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-11] FLUID INCLUSION STUDIES IN QUARTZ VEINS WITH TIN MINERALIZATION IN THE KIBARAN INTRUSIVE ROCKS IN KALEHE (SOUTH KIVU, DR CONGO)

「発表賞エントリー」

*MUSA Moise-Kam's SAIDI[1], MADDHUSOODHAN Satish Kumar[1] (1. Niigata Univ.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-12] Depleted peridotite and melt reaction as recorded by layered dunite-harzburgite in the Horoman peridotite, Hidaka Metamorphic Belt, Hokkaido, Japan.

「発表賞エントリー」

*Keisuke Kurihara[1], Tatsuhiko Kawamoto[1], Aya Hihara[1], Miki Tasaka[1], Hajime Taniuchi[2], Takeshi Kuritani[3], Akiko Matsumoto[3] (1. Shizuoka Univ., 2. AIST, 3. Hokkaido Univ.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R7-P-13] Research and development for the exploration of unknown cosmic ray events using Paleo-Detector

*Yuki Ido[1], Tatsuhiro Naka[2], Shota Futamura[3], Tohma Ori[4], Takenori Kato[5] (1. Nagoya Univ. Env., 2. Toho Univ. Sci, 3. Nagoya Univ. Sci., 4. N.I.T. Suzuka, 5. Nagoya Univ. ISEE)

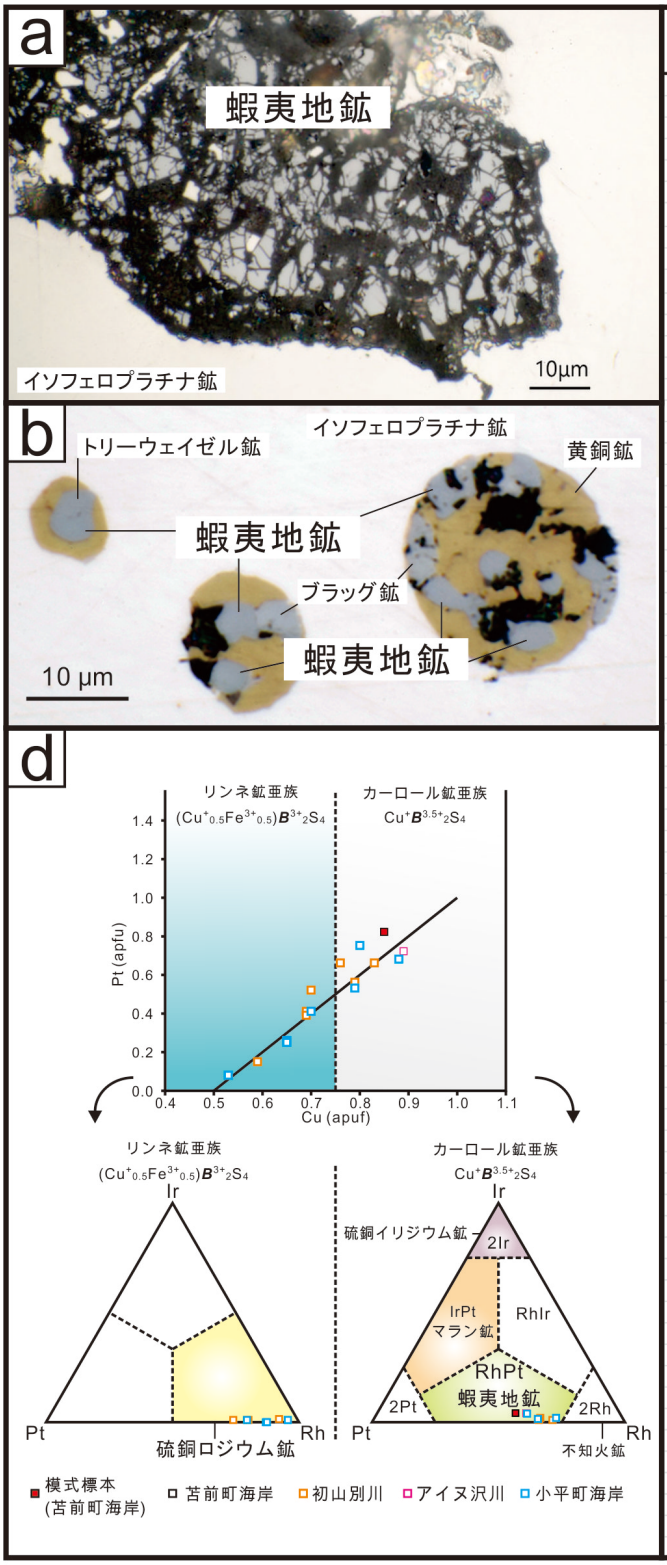
# Ezochiite and placer deposit of platinum group minerals in northwestern Hokkaido, Japan

*Daisuke HAMANE[1], Katsuyuki Saito

1. The University of Tokyo

Placer deposits of platinum-group minerals (PGM) were once distributed along the central axis of Hokkaido, but due to overhunting during the war, it has become difficult to collect. On the other hand, the several PGM placer deposits have been discovered in northwestern Hokkaido. In this study, we report on the PGM placer deposits in northwestern Hokkaido and the new thiospinel group mineral eezochiite (IMA2022-101) discovered there. Most of placers consist of rutheniridosmine, osmium, iridium, and osmium, while small amount of isoferroplatinum is included. Isoferroplatinum-based grains contain a variety of inclusions, including ezochiite, which is included as a spherical aggregate with other sulfide minerals, suggesting that ezochiite crystallized from melt trapped by isoferroplatinum. The empirical formula of ezochiite is $(Cu^{+}_{0.85}Fe^{3+}_{0.15})(Rh^{3+}_{1.09}Pt^{4+}_{0.78}Ir^{3+}_{0.08}Pt^{2+}_{0.05})S_{4.00}$, ideally $Cu^{+}(Rh^{3+}Pt^{4+})S_4$. The unit cell parameter is a = 9.8559(14) Å on Fd-3m space group. Ezochiite was confirmed in ophiolites, Ural-Alaskan intrusions, and orthomagmatic deposits, suggesting that ezochiite is a common mineral in PGM deposit.

Keywords: Platinum-group minerals (PGM), Placer PGM, Ezochiite

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| | 鉱物名 | 理想化学式 | 産地 | 主な産状 |
|---|---|---|---|---|
| 1 | Arsenopalladinite | $Pd_8As_3$ | A, OC, TC | 包有物 |
| 2 | Bowieite | $Rh_2S_3$ | TC | 包有物 |
| 3 | Braggite | $PdPt_3S_4$ | TC, OC | 包有物 |
| 4 | Chengdeite | $Ir_3Fe$ | S, A, N, U | 粒子の外縁 |
| 5 | Cherepanovite | RhAs | M, S, A, TC, OC, N, U | 包有物 |
| 6 | Cooperite | PtS | S, TC, OC | 包有物 |
| 7 | Cuprorhodsite | $(Cu^{+}_{0.5}Fe^{3+}_{0.5})Rh^{3+}_2S_4$ | S, TC, OC | 包有物 |
| 8 | Driekopite | PtBi | TC, OC, U | 包有物 |
| 9 | Erlichmanite | $OsS_2$ | S, A, TC, OC | 粒子の外縁 |
| 10 | Ezochiite | $Cu^{+}(Rh^{3+}Pt^{4+})S_4$ | S, A, TC, OC | 包有物 |
| 11 | Ferronickelplatinum | $Pt_2FeNi$ | M, S, A, TC, OC, O, U | 粒子の外縁 |
| 12 | Fleetite | $Cu_2RhIrSb_2$ | A | 包有物 |
| 13 | Garutiite | (Ni,Fe,Ir) | S, A, TC | 粒子の外縁 |
| 14 | Genkinite | $Pt_4Sb_3$ | OC | 包有物 |
| 15 | Geversite | $PtSb_2$ | U | 包有物 |
| 16 | Hexaferrium | (Fe,Os,Ru,Ir) | S | 包有物 |
| 17 | Hollingworthite | RhAsS | S, A, TC, OC, U | 粒子の外縁、包有物 |
| 18 | Hongshiite | PtCu | M, S, A, TC, OC, K, N, U | 離溶組織 |
| 19 | Irarsite | IrAsS | M, S, A, TC, K, O, N, U | 粒子の外縁、包有物 |
| 20 | Iridarsenite | $IrAs_2$ | S, A, U | 包有物 |
| 21 | Iridium | Ir | M, S, A, TC, OC, K, O, N, U | 粒子、離溶組織 |
| 22 | Isoferroplatinum | $Pt_3Fe$ | M, S, A, TC, OC, K, O, N, U | 粒子、離溶組織 |
| 23 | Isomertieite | $Pd_{11}Sb_2As_2$ | TC, OC, U | 包有物 |
| 24 | Kashinite | $Ir_2S_3$ | OC | 包有物 |
| 25 | Keithconnite | $Pd_{20}Te_7$ | OC, U | 包有物 |
| 26 | Kingstonite | $Rh_3S_4$ | OC | 包有物 |
| 27 | Kitagohaite | $Pt_7Cu$ | TC | 離溶組織 |
| 28 | Kuvaevite | $Ir_9Ni_{10}S_{16}$ | OC | 包有物 |
| 29 | Laurite | $RuS_2$ | M, S, A, TC, OC, K, O, N, U | 粒子の外縁、包有物 |
| 30 | Malanite | $Cu^{+}(Ir^{3+}Pt^{4+})S_4$ | OC | 包有物 |
| 31 | Maslovite | PtBiTe | OC | 包有物 |
| 32 | Mertieite | $Pd_8Sb_{2.5}As_{0.5}$ | TC, OC | 包有物 |
| 33 | Miassite | $Rh_{17}S_{15}$ | S, OC, U | 包有物 |
| 34 | Miessiite | $Pd_{11}Te_2Se_2$ | OC | 包有物 |
| 35 | Minakawaite | RhSb | TC, N, U | 外縁の包有物 |
| 36 | Moncheite | $Pt(Te,Bi)_2$ | TC, OC | 包有物 |
| 37 | Orthocuproplatinum | $Pt_3Cu$ | M, N, U | 包有物 |
| 38 | Osmium | Os | M, S, A, TC, OC, K, O, N, U | 粒子、離溶組織 |
| 39 | Palladinite | PdO | OC | 包有物 |
| 40 | Palladium | Pd | OC | 粒子 |
| 41 | Palladoarsenide (Palladodymite) | $Pd_2As$ | A, TC, OC, U | 包有物 |
| 42 | Platinum | Pt | M, S, A, TC, OC, K | 粒子、外縁の包有物 |
| 43 | Polkanovite | $Rh_{12}As_7$ | S, A, TC, OC, N, U | 包有物 |
| 44 | Pseudomertieite | $Pd_{11}(Sb,As)_4$ | A, TC, OC, U | 包有物 |
| 45 | Rhodarsenide | $Rh_2As$ | M, S, A, TC, OC, K, N, U | 包有物 |
| 46 | Rustenburgite | $Pt_3Sn$ | OC | 包有物 |
| 47 | Ruthenarsenite | (Ru,Ni)As | TC, U | 包有物 |
| 48 | Rutheniridosmine | (Ir,Os,Ru) | M, S, A, TC, OC, K, O, N, U | 粒子、離溶組織 |
| 49 | Ruthenium | Ru | M, S, A, TC, OC, K, O, N, U | 粒子、離溶組織 |
| 50 | Skaergaardite | PdCu | TC, OC | 包有物 |
| 51 | Sobolevskite | PdBi | OC | 包有物 |
| 52 | Sperrylite | $PtAs_2$ | M, S, A, TC, OC, K, N, U | 外縁の包有物 |
| 53 | Stibiopalladinite | $Pd_5Sb_2$ | TC, OC, O, U | 包有物 |
| 54 | Stillwaterite | $Pd_8As_3$ | TC, OC | 包有物 |
| 55 | Stumpflite | PtSb | U | 外縁の包有物 |
| 56 | Tamuraite | $Ir_9Fe_{10}S_{16}$ | OC | 包有物 |
| 57 | Telluropalladinite | $Pd_9Te_4$ | TC, OC | 包有物 |
| 58 | Tetraferroplatinum | PtFe | TC, OC, N, U | 粒子の外縁 |
| 59 | Tolovkite | IrSbS | S, A, N, U | 粒子の外縁、包有物 |
| 60 | Tomamaeite | $Cu_3Pt$ | M, S, A, TC, OC, N, U | 外縁の包有物 |
| 61 | Tömroosite | $Pd_{11}As_2Te_2$ | TC, OC | 包有物 |
| 62 | Torryweiserite | $Rh_9Ni_{10}S_{16}$ | OC | 包有物 |
| 63 | Tulameenite | $Pt_2CuFe$ | M, S, A, TC, OC, K, O, N, U | 粒子の外縁 |
| 64 | Vasilite | $(Pd,Cu)_{16}(S,Te)_7$ | S, TC, OC, U | 包有物 |
| 65 | Vincentite | $PdAs_3$ | OC, U | 包有物 |
| 66 | Vysotskite | (Pd,Ni)S | OC | 包有物 |
| 67 | Zaccariniite | RhNiAs | M, S, A, TC, OC, K, N, U | 外縁の包有物 |
| 68 | Zvyagintsevite | $Pd_3Pb$ | TC, OC | 包有物 |

図1. 模式標本の蝦夷地鉱（苫前町海岸）（a）、初山別川試料の蝦夷地鉱（b）、これまでに確認された白金族鉱物と主な産状（c）、北海道産試料の硫銅ロジウム鉱ー蝦夷地鉱の組成分布と鉱物分類（d）。産地：茂初山別川（M）、初山別川（S）、アイヌ沢川（A）、苫前町海岸（TC）、小平町海岸（OC）、上記念別沢川（K）、小平藥川（O）、沼田ポン川（N）、雨竜川（U）

# Review for Mineralogical Science: Mineral Resources, Heritage Stone, and SDGs

*Yuhei Takahashi[1]

1. NUE

Keywords: Mineral Resources, Heritage Stone

# Formation process of olivine with remarkable parting and apparently oblique extinction in the lherzolite of Ochiai-Hokudo peridotite complex, Okayama Prefecture, Japan

*Terumi EJIMA[1], Takashima Chihiro[2], Arai Shoji[3]

1. Shinshu University, 2. DAIYA SEIKI Co., Ltd., 3. Kanazawa University

Keywords: Ochiai-Hokudo, peridotite complex, olivine

# The effect of Na ion on carbonation reaction of forsterite

*Hiroki Hasegawa[1], Atsushi Kyono[2], Satoru Okada[1], Kosuke Yamaguchi[1]

1. Univ of Tsukuba, Grad. sch. of Life and Environmental. Sci, 2. Univ of Tsukuba, Life and Environmental Science

Keywords: Forsterite, Magnesite, Carbonation, Geological Carbon Storage

# Mineralogical characteristics of Pothole Reef and Pseudo Merensky Reef at the western limb of the Bushveld Complex, South Africa

*Amu Umesato[1], Takuya Echigo[1], Yasushi Watanabe[1]

1. Akita Univ. Int.

Keywords: Bushveld Complex, Platinum Group Elements, Merensky Reef, Monosulfide Solid Solution, Intermediate Solid Solution

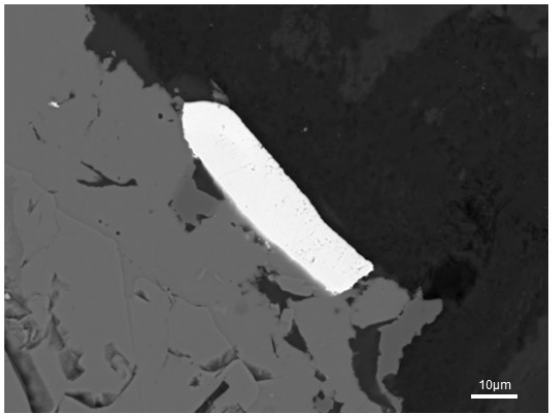



Fig. 1. Moncheite (white) formed on the rim of Nickel sulfide minerals (gray) in Pothole Reef. BSE image.

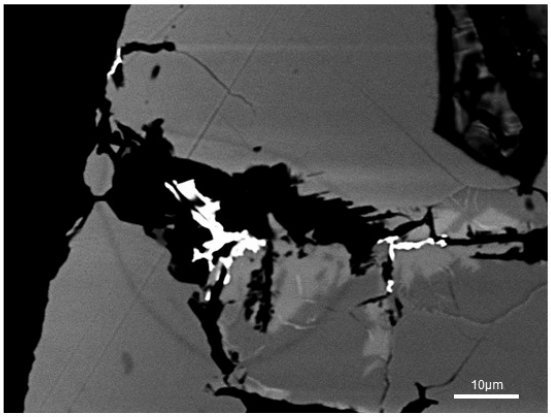



Fig. 2. Zvyagintsevite (white) formed on the rim of pentlandite (gray), in Pseudo Merensky Reef. BSE image.

# High-Ti biotite in the alkali volcanic rock from the Akiyoshi Belt and its significance

*Kosuke Kimura[1], Kaushik Das[2], Yasutaka Hayasaka[3]

1. Osaka Metro. Univ. Sci., 2. Hiroshima Univ., 3. Amakusa Mus. Goshoura Dinosaur Isl.

Keywords: Akiyoshi Belt, Greenstone, Zircon U-Pb age, High titanium biotite

# Estimation of the origin of SDW in the Horoman peridotite complex by analysis of micro-inclusions in the olivine

*Masaharu Aketa[1], Akira Miyake[1], Norikatsu Akizawa[2], Megumi Matsumoto[3], Yohei Igami[1], Itaru Mitsukawa[1]

1. Kyoto University, 2. University of Tokyo, 3. Tohoku University

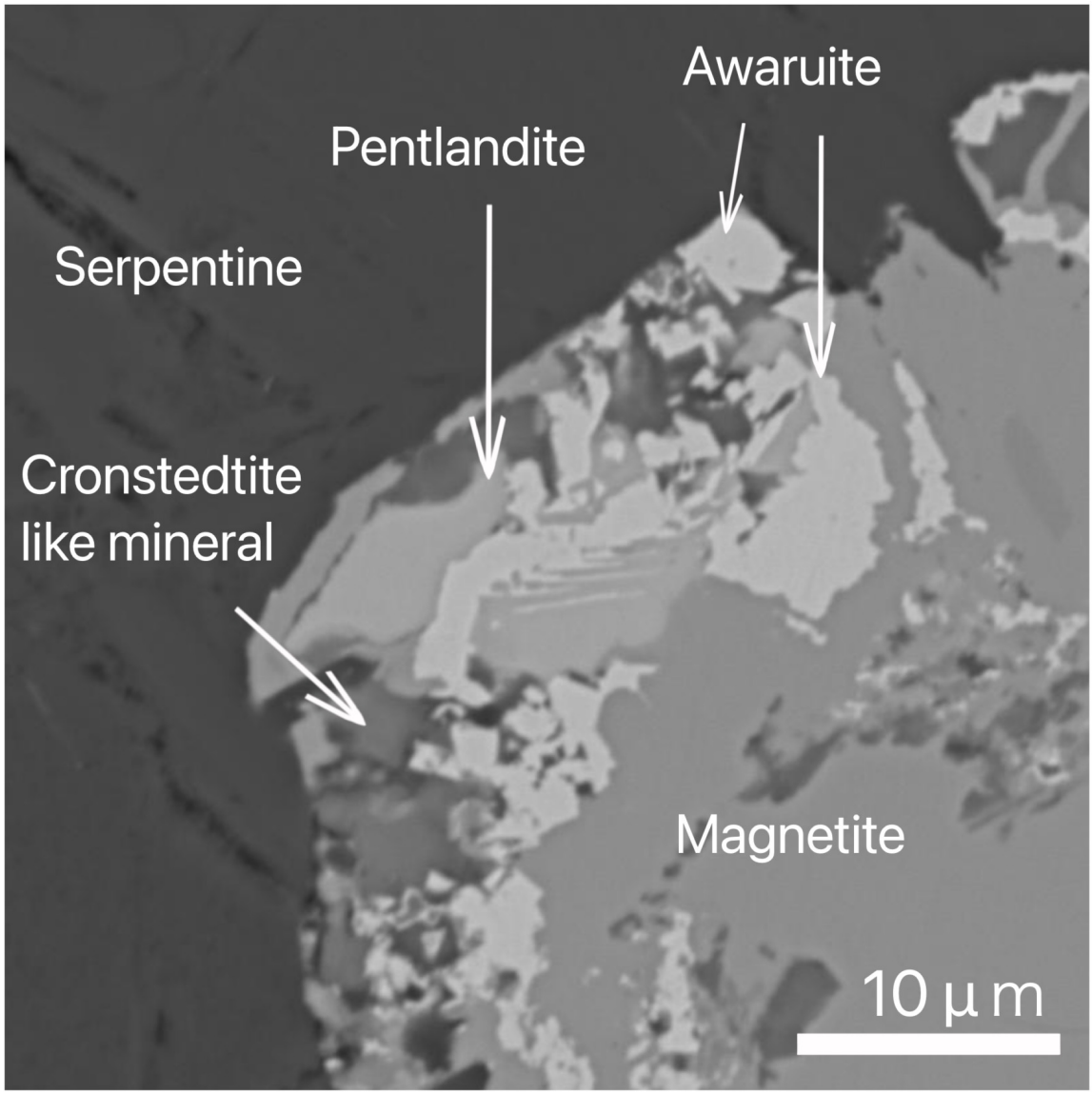
Keywords: Horoman peridotites, olivine, inclusion, Electron Microscope, XnCT

# Fe-Ni-S-As minerals in the Imono peridotite body, Besshi area, Niihama city, Ehime prefecture.

*Masato Kuniyoshi[1], Satomi Enju[1]

1. Ehime Univ.Sci and Eng.

Keywords: Fe-Ni-S-As mineral, Serpentinite, Peridotite, Imono peridotite body




図：蛇紋岩中の磁鉄鉱，ペントランド鉱，アワルワ鉱，クロンステッドタイト様鉱物の共生組織

# Fluorite mineralization associated with alkaline metasomatism in the Jinmu-Mihara deposit, Hiroshima, Japan.

*Masahiro SUNADA[1], Takuya Echigo[1], Yasushi Watanabe[1]

1. Akita Univ. IRS.

Keywords: Fluorite, Alkali (Na-K) metasomatism, Jinmu-Mihara deposit

# Petrological study of ultramafic rocks from the Kiyama area, eastern Kumamoto City

Narumichi Nishio[1], *Satoko ISHIMARU[2]

1. Kumamoto Univ. Sci., 2. Kumamoto Univ. FAST

Keywords: Serpentinite, Dunite, Chromian spinel, Kiyama metamorphic rock

# FLUID INCLUSION STUDIES IN QUARTZ VEINS WITH TIN MINERALIZATION IN THE KIBARAN INTRUSIVE ROCKS IN KALEHE (SOUTH KIVU, DR CONGO)

*MUSA Moise-Kam's SAIDI[1], MADDHUSOODHAN Satish Kumar[1]

1. Niigata Univ.

The Mesoproterozoic Kibaran granitoid formations host numerous mineral resources which are highly demanded in new technology industries, mineral such as Sn-W, Nb, Ta and Au. This mobile belt is formed by collision of the Western Congo with the Eastern Tanzanian, Bangwelu and Zimbabwe cratons, producing four generations of granite. These ore deposits are hosted in granite pegmatite (Nb, Ta) and Sn-W in quartz veins.

Fluid inclusions were studied in quartz vein samples in order to unravel the evolution of the mineralizing fluid controlling the ore deposits in Kalehe(DR Congo). In the study area the field and petrographic studies indicate that major rocks constitute of a variety of metapelites including sericite schists, micas schists, quartzites and igneous rocks such as granites, greisens and pegmatites. The quartz veins crosscutting the metapelite show a NE-SW trending, whereas the pegmatitic vein trend in a NW-SE direction crosscutting the Kibaran metasediments.
Fluid inclusions are abundant in quartz veins and metallic mineralized quartz veins. Primary, secondary and pseudo secondary inclusion are observed, in which the biphase inclusions are most common.The mineralizing fluids of the quartz-vein in the sericite schist have a heterogeneous nature at the time of trapping. The temperature of homogenization(Th) and salinities of the fluid inclusions were determined; some were having high Th with high salinity, others were with high Th but with low salinity, whereas another group have low Th with moderate salinity. The biphase Inclusions homogenization temperature range is 17.7- 303˚C and the salinity range is 0.88-16.24˚Wt%. The temperature of first ice melting(Tmice)values obtained so far from fluid inclusion microthermometry indicate various fluid compositions mainly CO2, CO2 + H2O rich, CO2+H20+/-CH4. These phases were confirmed by Raman spectroscopy and consistent with Tmice as well as the freezing point depression indicating the presence of salt (NaCl or other salts).

The mineralizing fluids trapped as fluid inclusions in the metallic quartz veins crosscutting shale formations can also be categorized as primary, secondary and pseudo secondary, these fluids were multiphase fluid inclusion (solid, liquid and vapor). Detailed studies on these inclusions are being carried out and will be presented.

Keywords: Fluid inclusion, microthermotry, Kibaran mobile belt, Tin, Raman spectroscopy

# Depleted peridotite and melt reaction as recorded by layered dunite-harzburgite in the Horoman peridotite, Hidaka Metamorphic Belt, Hokkaido, Japan.

*Keisuke Kurihara[1], Tatsuhiko Kawamoto[1], Aya Hihara[1], Miki Tasaka[1], Hajime Taniuchi[2], Takeshi Kuritani[3], Akiko Matsumoto[3]

1. Shizuoka Univ., 2. AIST, 3. Hokkaido Univ.

Keywords: peridotite, Horoman, banded dunite-harzburgite, melt-rock reaction, chemical composition

# Research and development for the exploration of unknown cosmic ray events using Paleo-Detector

*Yuki Ido[1], Tatsuhiro Naka[2], Shota Futamura[3], Tohma Ori[4], Takenori Kato[5]

1. Nagoya Univ. Env., 2. Toho Univ. Sci, 3. Nagoya Univ. Sci., 4. N.I.T. Suzuka, 5. Nagoya Univ. ISEE

Keywords: Muscovite, Olivine, Particle physics

Poster presentation | R8: Metamorphic rocks and tectonics

Fri. Sep 13, 2024 12:30 PM - 2:00 PM JST | Fri. Sep 13, 2024 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## R8: Metamorphic rocks and tectonics

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-01] Mineralogical characterization of serpentinite varieties in Sangun-Renge Belt exposed at Sasaguri, Fukuoka Prefecture, and their geological implications

「発表賞エントリー」

*Swarnaa ANNADURAI MUNUSAMY[1], Jun-ichi ANDO[1,2], Yuki IWASAKI[3], Kaushik DAS[1,2], Dyuti Prakash SARKAR[4], Seiichiro UEHARA[5] (1. Hiroshima Univ., 2. HiPeR, Hiroshima, 3. NIPPON STEEL CORP., 4. JAMSTEC, 5. The Kyushu Univ. Museum)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-02] Metamorphic temperature structure of Sanbagawa Metamorphic Belt in the southern part of Shinshiro City, Aichi Prefecture, Japan

「発表賞エントリー」

*Akane Matsuzaki[1], Yui Kouketsu[1], Katsuyoshi Michibayashi[1] (1. Nagoya Univ. Env.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-03] Origin and pyrometamorphism of gneissose granitoid xenoliths from Mt. Daisen, Tottori Prefecture, SW Japan

「発表賞エントリー」

*Mizuki TAKAHASHI[1], Shunsuke Endo[1] (1. Shimane University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-04] Petrography of monazite in a metapelite in the eastern Nepal Himalaya and Development of Th-Pb dating method for monazite

「発表賞エントリー」

*Shumpei KUDO[1], Tetsuo Kawakami[1], Sota Niki[2], Toru Nakajima[3], Takafumi Hirata[4], Takeshi Imayama[5] (1. Kyoto Univ. Sci., 2. Nagoya Univ. ISEE., 3. JAEA, 4. UTokyo. Sci., 5. Okayama Univ. of Sci.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-05] Petrological description of ultramafic rocks in the low-grade metamorphic zone of the Sanbagawa belt: A case study of the Ina area, Nagano Prefecture, central Japan

「発表賞エントリー」

*Kaho Nobuhara[1], Hiroshi Mori[1], Takayoshi Nagaya[2] (1. Shinshu Univ. , 2. Tokyo Gakugei Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-06] Detrital zircon U–Pb dating and Raman spectral analysis of carbonaceous material in the boundary area of the Sanbagawa–Chichibu belts, central Kii Peninsula

*Hiroshi MORI[1], Kojiro USUI[1,2], Tetsuya Tokiwa[1], Kazuhiro Ozawa[3] (1. Shinshu University, 2. Nippon Koei Co., Ltd., 3. Precision Forestry Measurement Ltd.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-07] New finding of wakefieldite from an amphibolite in the Horokanai area, Kamuikotan HP metamorphic belt, Hokkaido, Japan

*Taro Kato[1], Kosuke NAEMURA[1], Toru Takeshita[2] (1. Iwate University, 2. Pacific Consultants Co., Ltd.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-08] Thermal history and protolithic detritus provenance of a sillimanite–chrysoberyl-bearing gneiss from the Ashio mountains in the western part of Tochigi prefecture

*Ippei KITANO[1] (1. Hokkaido Univ. Mus.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-09] Petrological characterlization and geochronology of metamorphic rocks from the Northern Subzone of the Maizuru Terrane

*Sota Muroi[1], Kaushik Das[1], Kenta Kawaguchi[1], Yasutaka Hayasaka[2] (1. Hiroshima University, 2. Amakusa Museum of Goshoura Dinosaur Island)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-10] The fate of organic carbon during subduction: Raman micro-spectroscopy and C-isotope geochemistry of carbonaceous materials in Sambagawa pelitic schists, central Shikoku, Japan

*Hironobu Harada[1], Tatsuki Tsujimori[1], Akizumi Ishida[1], Takeshi Kakegawa[1], Tetsumaru Itaya[2] (1. Tohoku Univ., 2. jGnet)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R8-P-11] Fluid inclusions of ophicarbonates in the Apennine Mountains, Italy

Hiroyuki Kaneko[1], *Tatsuhiko KAWAMOTO[1], Francesca Meneghini[2], Yosuke Osawa[1] (1. Shizuoka University, 2. Università di Pisa | UNIPI · Department of Earth Sciences)

# Mineralogical characterization of serpentinite varieties in Sangun-Renge Belt exposed at Sasaguri, Fukuoka Prefecture, and their geological implications

*Swarnaa ANNADURAI MUNUSAMY[1], Jun-ichi ANDO[1,2], Yuki IWASAKI[3], Kaushik DAS[1,2], Dyuti Prakash SARKAR[4], Seiichiro UEHARA[5]

1. Hiroshima Univ., 2. HiPeR, Hiroshima, 3. NIPPON STEEL CORP., 4. JAMSTEC, 5. The Kyushu Univ. Museum

Serpentinite (serp) of Sangun-Renge Belt are widely exposed around the Narubuchi dam in Sasaguri area, Fukuoka Prefecture. The purpose of this study is to investigate the mineralogical characteristics of different types of serp in this region in order to understand the tectonic and metamorphic history of the Sangun-Renge Belt serp. Optical microscopy reveals the petrographic characteristics, EPMA is used to measure the composition of Cr-spinel, and Raman spectroscopy is utilized to distinguish serpentine polymorphs. The serp in the Sasaguri area primarily consists of serpentine group minerals, with minor amounts of magnetite, calcite, chlorite, talc, and Cr-spinel. Three types are identified on the basis of their dominant serpentine polymorph. Type 1: Lizardite serp, showing the hourglass textures with chrysotile veins. Type 2: Lizardite-Chrysotile serp, dominated by a mesh texture where the core and rim minerals are lizardite and chrysotile, and lizardite, respectively. And the antigorite (atg) veins are observed. Type 3: Atg serp, exposed to the north and south of the study area. Their microstructures are different. The serp in the north is composed of atg a few mm in grain size, showing undulose extinction and dynamic recrystallization, but no CPO. The serp in the south is composed of atg less than 200 $\mu$m in size, with atg veins. At the north, the mylonitized zones can be identified where the atg grain size is less than 100 $\mu$m, with (001) and [010] oriented parallel to foliation and lineation, respectively. The chemical composition of the Cr-spinel in the north serp indicates a forearc peridotite origin. The ferritchromite rim in the Cr-spinel suggests that the peridotite is re-equilibrated at greenschist to amphibolite temperatures (400-700˚C). A magnetite overgrowth around the ferritchromite rim indicates the serpentinization after ferritchromitization, which occurs at 250-400˚C. Based on the above results, the geological implications of the identified serpentine polymorphs and associated mineral assemblages for understanding the tectonic and metamorphic history of the Sangun-Renge Belt serp will be discussed in our presentation.

Keywords: Serpentinization, Antigorite, Serpentine polymorphs, Cr-spinel

# Metamorphic temperature structure of Sanbagawa Metamorphic Belt in the southern part of Shinshiro City, Aichi Prefecture, Japan

*Akane Matsuzaki[1], Yui Kouketsu[1], Katsuyoshi Michibayashi[1]

1. Nagoya Univ. Env.

Keywords: Quartz, Raman carbonaceous material geothermometer, Sanbagawa Metamorphic Belt

# Origin and pyrometamorphism of gneissose granitoid xenoliths from Mt. Daisen, Tottori Prefecture, SW Japan

*Mizuki TAKAHASHI[1], Shunsuke Endo[1]

1. Shimane University

Keywords: Mt. Daisen, xenolith, pyrometamorphism

# Petrography of monazite in a metapelite in the eastern Nepal Himalaya and Development of Th-Pb dating method for monazite

*Shumpei KUDO[1], Tetsuo Kawakami[1], Sota Niki[2], Toru Nakajima[3], Takafumi Hirata[4], Takeshi Imayama[5]

1. Kyoto Univ. Sci., 2. Nagoya Univ. ISEE., 3. JAEA, 4. UTokyo. Sci., 5. Okayama Univ. of Sci.

Keywords: Monazite, Th-Pb dating method, Higher Himalayan Crystallines

# Petrological description of ultramafic rocks in the low-grade metamorphic zone of the Sanbagawa belt: A case study of the Ina area, Nagano Prefecture, central Japan

*Kaho Nobuhara[1], Hiroshi Mori[1], Takayoshi Nagaya[2]

1. Shinshu Univ. , 2. Tokyo Gakugei Univ.

Keywords: Sanbagawa (Sambagawa) belt, ultramafic rock, chlorite zone, Ina area

# Detrital zircon U–Pb dating and Raman spectral analysis of carbonaceous material in the boundary area of the Sanbagawa–Chichibu belts, central Kii Peninsula

*Hiroshi MORI[1], Kojiro USUI[1,2], Tetsuya Tokiwa[1], Kazuhiro Ozawa[3]

1. Shinshu University, 2. Nippon Koei Co., Ltd., 3. Precision Forestry Measurement Ltd.

Keywords: Sanbagawa Belt, Chichibu Belt, detrital zircon U–Pb dating, Raman spectral analysis, carbonaceous material

# New finding of wakefieldite from an amphibolite in the Horokanai area, Kamuikotan HP metamorphic belt, Hokkaido, Japan

*Taro Kato[1], Kosuke NAEMURA[1], Toru Takeshita[2]

1. Iwate University, 2. Pacific Consultants Co., Ltd.

Kamuikotan amphibolite exposed at the Horokanai area experienced transformation from amphibolite to blueschist facies metamorphism. Similar occurrences are found throughout the world, and it is generally regarded as a result of an isobaric cooling (counterclockwise) pathway. In other words, amphibolite is thought to have remained at depth and experienced cooling. To address this issue, we studied an epidote amphibolite exposed at the Horokanai hill. The rock displays a foliation consisting of hornblende/actinolite, epidote, plagioclase, rutile, white mica (Si=3.3-3.5 apfu, O=11) ±chlorite, and these primary minerals are more or less replaced by secondary blueschist facies minerals along pull apart fractures and rims of primary minerals. The latter consists of glaucophane, chlorite, titanite, epidote, pumpellyite, and white mica (Si=3.5-3.8 apfu, O=11). Yttrium vanadate (wakefieldite) grains occur along pull apart fractures of epidote and hornblende, and the remaining fractures were filled by phengite rich white mica. This suggests wakefieldite was formed before or during blueschist facies metamorphism. According to previous studies, wakefieldite could be stable under ultraoxidation conditions at shallow depths. Following this idea, it is unlikely that the Kamuikotan amphibolite was transformed into blueschist by isobaric cooling at depth, but rather once exhumed to shallow depth and sunk back to the depth.

Keywords: Kamuikotan metamorphic belt, yttrium vanadate, wakefieldite-(Y), P-T-t path

# Thermal history and protolithic detritus provenance of a sillimanite–chrysoberyl-bearing gneiss from the Ashio mountains in the western part of Tochigi prefecture

*Ippei KITANO[1]

1. Hokkaido Univ. Mus.

Keywords: sillimanite–chrysoberyl-bearing gneiss, andalusite-bearing granite, thermal history, detritus provenance, Ashio mountains

# Petrological characterlization and geochronology of metamorphic rocks from the Northern Subzone of the Maizuru Terrane

*Sota Muroi[1], Kaushik Das[1], Kenta Kawaguchi[1], Yasutaka Hayasaka[2]

1. Hiroshima University, 2. Amakusa Museum of Goshoura Dinosaur Island

Keywords: Maizuru Terrane, Northern Subzone, Komori-Kuwagai metamorphic rocks, P-T estimates, CHIME age of monazite

# The fate of organic carbon during subduction: Raman micro-spectroscopy and C-isotope geochemistry of carbonaceous materials in Sambagawa pelitic schists, central Shikoku, Japan

*Hironobu Harada[1], Tatsuki Tsujimori[1], Akizumi Ishida[1], Takeshi Kakegawa[1], Tetsumaru Itaya[2]

1. Tohoku Univ., 2. jGnet

Keywords: carbonaceous materials, carbon isotope, Raman micro-spectroscopy, Sambagawa Belt, pelitic schist

# Fluid inclusions of ophicarbonates in the Apennine Mountains, Italy

Hiroyuki Kaneko[1], *Tatsuhiko KAWAMOTO[1], Francesca Meneghini[2], Yosuke Osawa[1]

1. Shizuoka University, 2. Università di Pisa | UNIPI ·Department of Earth Sciences

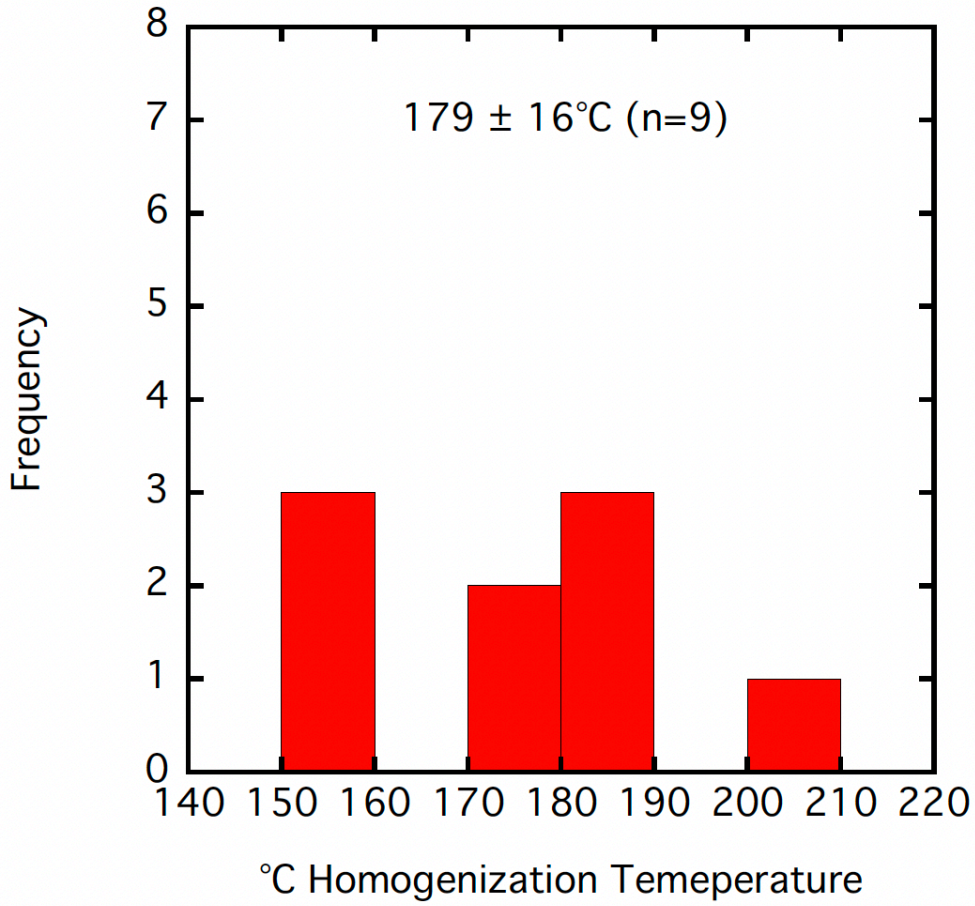
The Bracco ophicarbonate from the Apennines, Italy, is studied for petrography and microthermometry of fluid inclusions in the calcite. The studied serpentinite body is a part of an ophiolite that has undergone relatively low grade metamorphism, considered to be pumpellyite facies, and retains hydrothermal metamorphic vein textures and seafloor depositional textures that may record interactions with Jurassic seawater and mantle peridotite/ serpentinite (Cannao et al., 2020, in Chemical Geology).

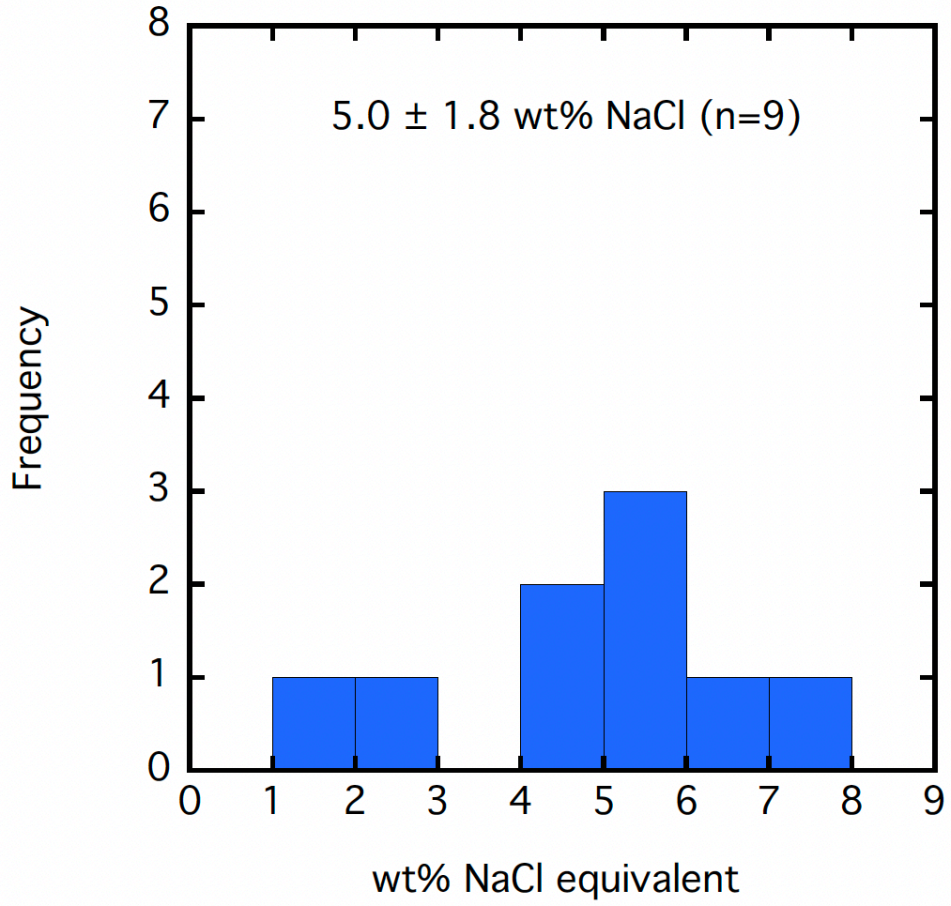
Raman spectroscopy and micro-XRF analysis indicate that the rocks are mainly composed of antigorite, lizardite, and calcite. We performed microthermometry of saline fluid inclusions in relatively large crystals of calcite veins. Other fine-grained calcite crystals also exist, but microthermometry of their fluid inclusions has been difficult up to now. We also have sedimentary ophicarbonate (Cannao et al., 2020) in the same outcrop, and we would like to obtain data on these fluid inclusions in the future.

Microthermometry results show that the salinity estimated from freezing point depression is 5.0±1.8 NaCl wt% (n=9) and the homogenization temperature between gas and liquid phases is 179±16˚C (n=9). The salinity varies from 1 to 8 NaCl wt% within a thin section, and even within a crystal there are 3 NaCl wt% variations, indicating that saline fluids with such degrees of variation existed during the carbonation of the serpentinite.

We would like to discuss the carbonation process of serpentinite at the seafloor by comparing the salinity and homogenization temperature of fluid inclusions in calcite in ophiolites from low grade metamorphic regions in the Western Alps reported by Inukai et al. (2023, Mineralogical Society Abstracts) and other previous studies.

Keywords: fluid inclusions, serpentinite, seawater, carbon dioxide, ophicarbonate


179 ± 16°C (n=9)
Frequency
0
1
2
3
4
5
6
7
8
140 150 160 170 180 190 200 210 220
°C Homogenization Temeperature


5.0 ± 1.8 wt% NaCl (n=9)
Frequency
0
1
2
3
4
5
6
7
8
0 1 2 3 4 5 6 7 8 9
wt% NaCl equivalent

Poster presentation | R2: Crystal structure, crystal chemistry, physical properties of minerals, crystal growth and applied mineralogy

Sat. Sep 14, 2024 12:30 PM - 2:00 PM JST | Sat. Sep 14, 2024 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## R2: Crystal structure, crystal chemistry, physical properties of minerals, crystal growth and applied mineralogy

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R2-P-01] Advanced four-circle goniometer system for single-crystal diffraction measurements at BL-10A, PF: anomalous X-ray scattering method & in situ high-pressure experiments

*Takahiro KURIBAYASHI[1], Ryo Yamane[2], Keita Harada[1], Toshiro Nagase[3], Kazumasa Sugiyama[2] (1. Tohoku University (Sci), 2. Tohoku University (IMR), 3. Tohoku University (Mus))

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R2-P-02] Fine Structural Analysis using Single-Crystal Anomalous X-ray Scattering in KEK Photon Factory BL-6C

*Makoto TOKUDA[1], Takumi Ichimura[2], Koichi Momma[6], Ritsuro Miyawaki[6], Takashi Mikouchi[4], Akira Yoshiasa[3], Kazumasa Sugiyama[5] (1. IINa, Kumamoto Univ., 2. Tohoku Univ. Eng, 3. Kumamoto Univ. Sci, 4. Univ. of Tokyo UMUT , 5. IMR, Tohoku Univ., 6. Nat'l. Mus. Nat. Sci.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R2-P-03] Evaluation of Fe K-edge XANES anisotropy and accurate determination of micro-area $Fe^{2+}/Fe^{3+}$ in clinopyroxene using multivariate analysis

「発表賞エントリー」

*Taisuke Ito[1], Simon Richard Wallis[1], Yoshio Takahashi[1] (1. The Univ. of Tokyo, EPS)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R2-P-04] Fine structural analysis of Diopside (Violan) containing Mn and Fe

「発表賞エントリー」

*Hayato Chiba[1], Kazumasa Sugiyama[2], Makoto Tokuda[3], Takashi Mikouchi[4] (1. Tohoku Univ. Eng., 2. Tohoku Univ. IMR, 3. Kumamoto Univ. IINa, 4. UMUT)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R2-P-05] Single-crystal X-ray diffraction study of a largely Cs-exchanged natural Ca-chabazite: crystal-chemical factors for its excellent Cs-exchange ability

Naomi KAWATA[1], Ryo FURUHASHI[1], Keiko FUJIWARA[1], Makio OHKAWA[2], *Akihiko NAKATSUKA[1] (1. Yamaguchi Univ. Sci. Tech. Innov., 2. Hiroshima Univ. Adv. Sci. Eng.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R2-P-06] Distribution of $Mn^{3+}$ and $Mn^{4+}$ studied by X anomalous scattering: the details of 3×4 tunneled structure formed by $MnO_6$ octahedron in woodruffite

「発表賞エントリー」

*Christopher Miyazaki[1], Ryo Yamane[2], Kazumasa Sugiyama[2], Makoto Tokuda[3], Takeshi Mikouchi[4] (1. Tohoku Univ. Eng., 2. Tohoku Univ. IMR, 3. Kumamoto Univ. IINa, 4. UMUT)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R2-P-07] $Mg^{2+}$ and $Ba^{2+}$ ion-exchange of GTS-type Na titanosilicate and its structural characterization

*Keiko FUJIWARA[1], Naomi Kawata[1], Akihiko Nakatsuka [1] (1. Yamaguchi Univ. Sci. Tech. Innov.)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-08] Distribution of $Fe^{3+}$ among tetrahedral sites and crystal structural change of gehlenite-$Fe^{3+}$ gehlenite

*Maki HAMADA[1], Mariko Nagashima[2] (1. Kanazawa University, 2. Yamaguchi University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-09] Crystallographic site preference of impurity elements in olivine by ALCHEMI method

*Yohei IGAMI[1], Akira MIYAKE[1], Ryo WAKABAYASHI[1], Norikatsu AKIZAWA[2] (1. Kyoto University, 2. The University of Tokyo)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-10] Precipitated structures of pyroxene lamellar with various directions

*Shoichi TOH[1] (1. Fukuoka University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-11] Crystal chemistry of bridgmanite with Al/Fe contents expected in MORB component

*Akihiko NAKATSUKA[1], Hiroshi FUKUI[2], Seiji KAMADA[3], Naohisa HIRAO[2], Makio OHKAWA[4], Kazumasa SUGIYAMA[5], Takashi YOSHINO[6] (1. Yamaguchi Univ. Sci. Tech. Innov., 2. JASRI, 3. AD Science Inc., 4. Hiroshima Univ. Adv. Sci. Eng., 5. Tohoku Univ. IMR, 6. Okayama Univ. IPM)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-12] Mechanism of the pressure-induced crystallization of amorphous calcium carbonate

*Chiho Morita[1], Hiroki Kobayashi[1], Hiroyuki Kagi[1] (1. UTokyo. Sci.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R2-P-13] Differences in the effects of Li and Cs on the calcitization of vaterite.

*Noboru FURUKAWA[1], Ami Kinoda[2] (1. Chiba University, 2. NIWAKA)

# Advanced four-circle goniometer system for single-crystal diffraction measurements at BL-10A, PF: anomalous X-ray scattering method & in situ high-pressure experiments

*Takahiro KURIBAYASHI[1], Ryo Yamane[2], Keita Harada[1], Toshiro Nagase[3], Kazumasa Sugiyama[2]

1. Tohoku University (Sci), 2. Tohoku University (IMR), 3. Tohoku University (Mus)

Keywords: anomalous X-ray scattering, In situ single-crystal X-ray diffraction, synchrotron radiation

# Fine Structural Analysis using Single-Crystal Anomalous X-ray Scattering in KEK Photon Factory BL-6C

*Makoto TOKUDA[1], Takumi Ichimura[2], Koichi Momma[6], Ritsuro Miyawaki[6], Takashi Mikouchi[4], Akira Yoshiasa[3], Kazumasa Sugiyama[5]

1. IINa, Kumamoto Univ., 2. Tohoku Univ. Eng, 3. Kumamoto Univ. Sci, 4. Univ. of Tokyo UMUT , 5. IMR, Tohoku Univ., 6. Nat' l. Mus. Nat. Sci.

Keywords: Anomalous X-ray Scattering, Single-crystal X-ray Diffraction, Element Distribution, Valence-Difference Contrast



# Evaluation of Fe K-edge XANES anisotropy and accurate determination of micro-area $Fe^{2+}/Fe^{3+}$ in clinopyroxene using multivariate analysis

*Taisuke Ito[1], Simon Richard Wallis[1], Yoshio Takahashi[1]

1. The Univ. of Tokyo, EPS

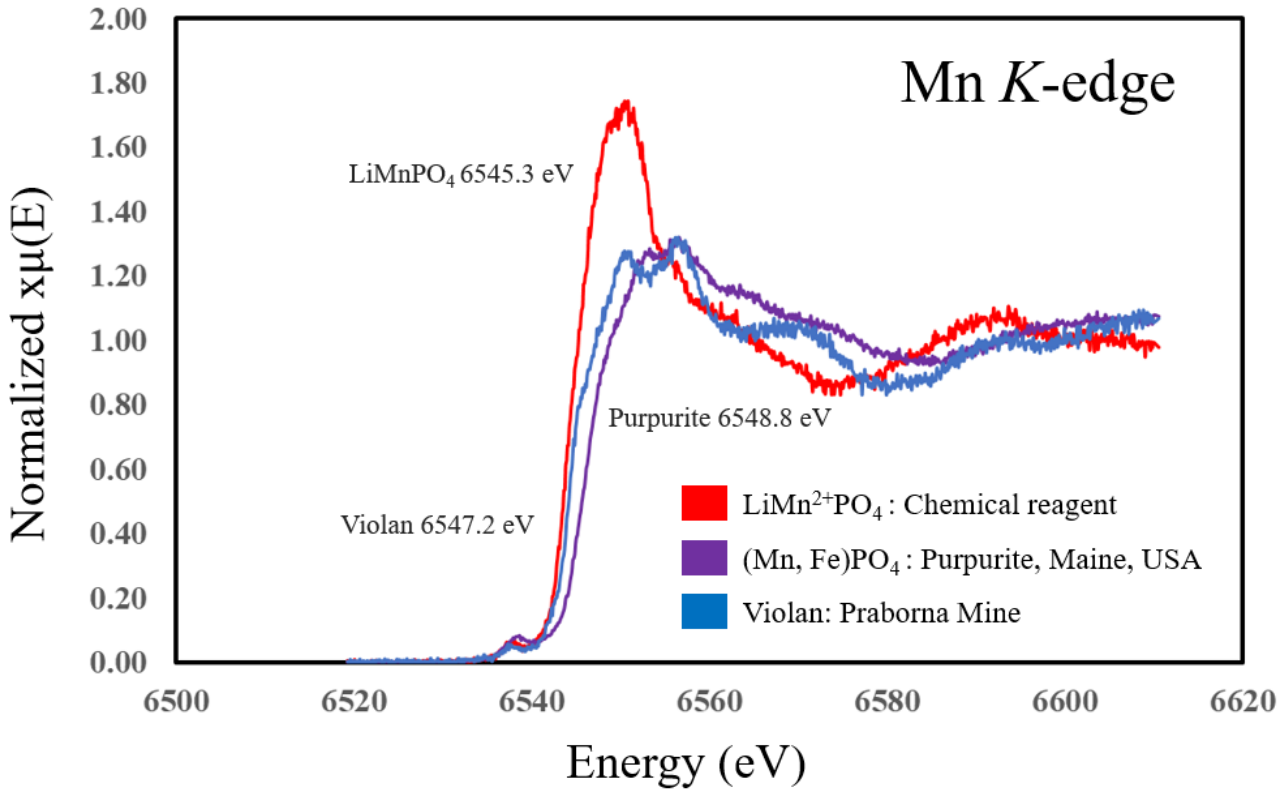
Keywords: XAFS spectroscopy, clinopyroxene, Fe2+/Fe3+, multivariate analysis

# Fine structural analysis of Diopside (Violan) containing Mn and Fe

*Hayato Chiba[1], Kazumasa Sugiyama[2], Makoto Tokuda[3], Takashi Mikouchi[4]

1. Tohoku Univ. Eng., 2. Tohoku Univ. IMR, 3. Kumamoto Univ. IINa, 4. UMUT

Keywords: Diopside, Violan, AXS, XANES



# Single-crystal X-ray diffraction study of a largely Cs-exchanged natural Ca-chabazite: crystal-chemical factors for its excellent Cs-exchange ability

Naomi KAWATA[1], Ryo FURUHASHI[1], Keiko FUJIWARA[1], Makio OHKAWA[2], *Akihiko NAKATSUKA[1]

1. Yamaguchi Univ. Sci. Tech. Innov., 2. Hiroshima Univ. Adv. Sci. Eng.

The amount of contaminated water generated by the Fukushima Daiichi Nuclear Power Plant accident, caused by the Great East Japan Earthquake (March 11, 2011), continues to increase and has become a serious problem. Among the radioactive elements contained in contaminated water, $^{137}Cs$ (30.1 years) and $^{90}Sr$ (28.8years) with a long half-life were released in large quantities by the nuclear accident. The search and development of ion-exchangers for highly efficient recovery and removal of these radioactive elements are eagerly desired. Currently, natural zeolite minerals such as chabazite, mordenite and clinoptilolite are practically utilized at the crippled nuclear power plant as the radioactive element removers. To design and develop highly-effective radioactive element removers, it is significant to reveal the relationship between the crystal structural features and the exchange abilities for radioactive ions. Here we conduct the single-crystal X-ray diffraction study of a hydrated natural Ca-chabazite from Burnt Cabin Creek, Spray, Wheeler Co., Oregon, USA and its largely Cs-exchanged form. The sample compositions are $(Ca_{1.86}Na_{0.13}K_{0.09})(Al_{3.98}Si_{8.03})O_{24}\cdot 12.38H_2O$ for the former and $(Cs_{2.66}Ca_{0.45}Na_{0.04}K_{0.10})(Al_{4.04}Si_{8.04})O_{24}\cdot 8.52H_2O$ for the latter.

We revealed that the Cs-exchanged form has the essentially ten occupied-sites in extraframework: four water sites (OW2’, OW3, OW4, OW5), essentially two Cs sites (Cs1/Cs1’, Cs2) and four Ca sites (Ca1, Ca2, Ca3, Ca4). The $Cs^+$ ions more preferentially occupy the Cs1/Cs1’ site, located at/around the centers of the 8-membered ring windows, than the Cs2 site. In terms of interatomic distances, the coordination environments of the extraframework species in the chabazite crystals before and after the Cs-exchange treatment are discussed. In particular, both samples have a common feature that possible hydrogen bonds are relatively weak between water molecules and framework O atoms, whereas those are relatively strong between water molecules. On the basis of these findings, we discuss the crystal-chemical key factors for an excellent Cs-exchange ability of chabazite as a highly efficient radioactive-element remover.

Keywords: Ca-chabazite, Single-crystal X-ray Diffraction, Cs-exchange ability

# Distribution of $Mn^{3+}$ and $Mn^{4+}$ studied by X anomalous scattering: the details of 3×4 tunneled structure formed by $MnO_6$ octahedron in woodruffite

*Christopher Miyazaki[1], Ryo Yamane[2], Kazumasa Sugiyama[2], Makoto Tokuda[3], Takeshi Mikouchi[4]

1. Tohoku Univ. Eng., 2. Tohoku Univ. IMR, 3. Kumamoto Univ. IINa, 4. UMUT

Keywords: woodruffite

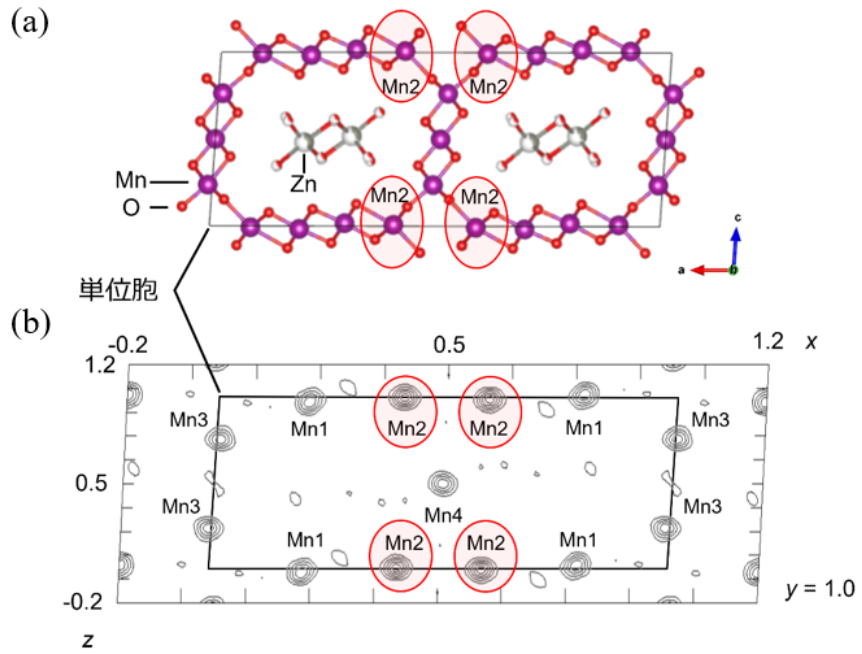



Fig. 1 (a) Woodruffiteの結晶構造（VESTAにより描画）
(b) MnのX線異常散乱によって求めたコントラストマップ（等高線間隔：1.2 e/Å$^3$）

# $Mg^{2+}$ and $Ba^{2+}$ ion-exchange of GTS-type Na titanosilicate and its structural characterization

*Keiko FUJIWARA[1], Naomi Kawata[1], Akihiko Nakatsuka [1]

1. Yamaguchi Univ. Sci. Tech. Innov.

GTS-type microporous titanosilicates have a three-dimensional tunnel-type structure. In this structure, four $TiO_6$ octahedra linked by edge-sharing form a $Ti_4O_{16}$ cluster; the clusters are linked through $SiO_4$ tetrahedra to form a three-dimensional framework with an interconnected pore system involving cavities of 8-ring channels, occupied by the alkali-metal ions and adsorbed water molecules. It is reported that Na-GTS, $Na_4[(TiO)_4(SiO_4)_3]\cdot 6H_2O$, crystallizes in a rhombohedral phase with space group *R*3*m*; its unit cell [$a$ = 7.8123 (6) Å, $\alpha$ = 88.794 (9) ˚] is very close to cubic cell and often described as a pseudocubic cell. In this study, we focused on $Mg^{2+}$ and $Ba^{2+}$, which have the different ionic size from and the same valence as the radioactive elements $Sr^{2+}$. We investigated the effects of ionic size and valence on the $Mg^{2+}$- and $Ba^{2+}$-exchange properties of Na-GTS.

We have prepared the ion-exchanged forms, $Na_{4(1-x)}M_{2x}[(TiO)_4(SiO_4)_3]\cdot yH_2O$ (M: Mg, Ba), by treating Na-GTS with $MgCl_2$ and $BaCl_2$ aqueous solutions ($C_M$ = 0 ~ 7.9 mol/L) at 25 ˚C for 24 hours. The maximum ion-exchange rates of Mg and Ba were $x$ = 0.76 and 0.86, respectively. We evaluated the unit-cell parameters from the powder X-ray diffraction (XRD) by a profile fitting method assuming a rhombohedral unit-cell and the $H_2O$ content ($y$) by TG. The increase in the ion-exchange rate ($x$) decreases the unit-cell volumes ($V$) and the $H_2O$ contents ($y$) of the $Ba^{2+}$-exchanged samples, but increases those of the $Mg^{2+}$-exchanged samples. The increase in $V$ of the $Mg^{2+}$-exchanged samples can be due to the increase in the $y$ value; it can be brought about by the increase in the free space in the pores due to the exchange of smaller divalent $Mg^{2+}$ with larger monovalent $Na^+$. The decrease in $V$ of $Ba^{2+}$-exchanged samples can be explained by the interpretation that the decrease in the number of exchangeable-cations due to the exchange of divalent $Ba^{2+}$ with monovalent $Na^+$ yields the decrease in the number of water molecules coordinating to it. In these samples, the cation distribution of $Mg^{2+}$ and $Ba^{2+}$ in the cavities will be discussed from the comparison of the observed and simulated XRD patterns.

Keywords: Na-GTS, Ion-exchange, Powder XRD

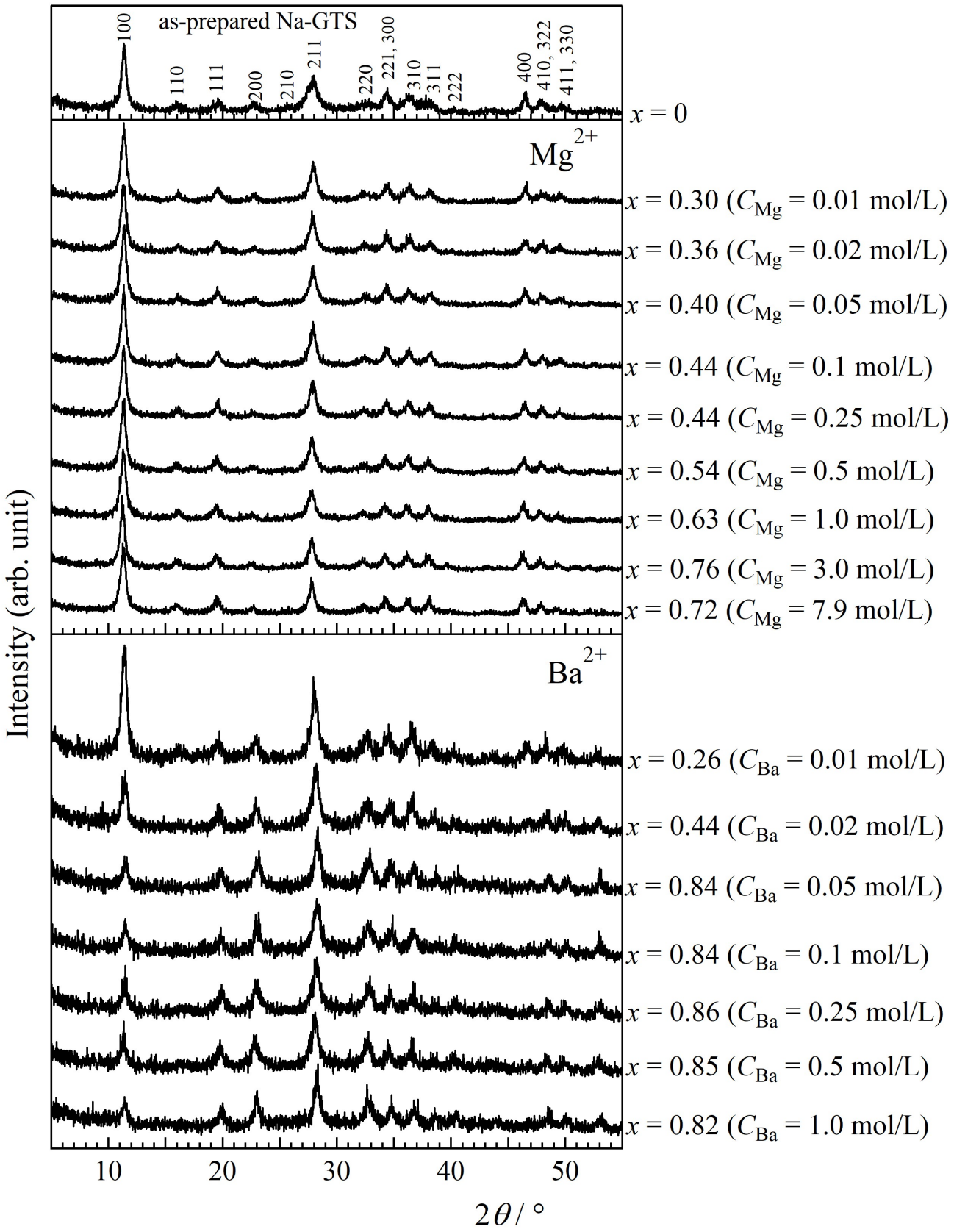



Fig. 1. Observed XRD patterns of $Mg^{2+}$ and $Ba^{2+}$-exchanged Na-GTS.

# Distribution of $Fe^{3+}$ among tetrahedral sites and crystal structural change of gehlenite-$Fe^{3+}$ gehlenite

*Maki HAMADA[1], Mariko Nagashima[2]

1. Kanazawa University, 2. Yamaguchi University

Keywords: synthetic melilite, crystal structural change, gehlenite

# Crystallographic site preference of impurity elements in olivine by ALCHEMI method

*Yohei IGAMI[1], Akira MIYAKE[1], Ryo WAKABAYASHI[1], Norikatsu AKIZAWA[2]

1. Kyoto University, 2. The University of Tokyo

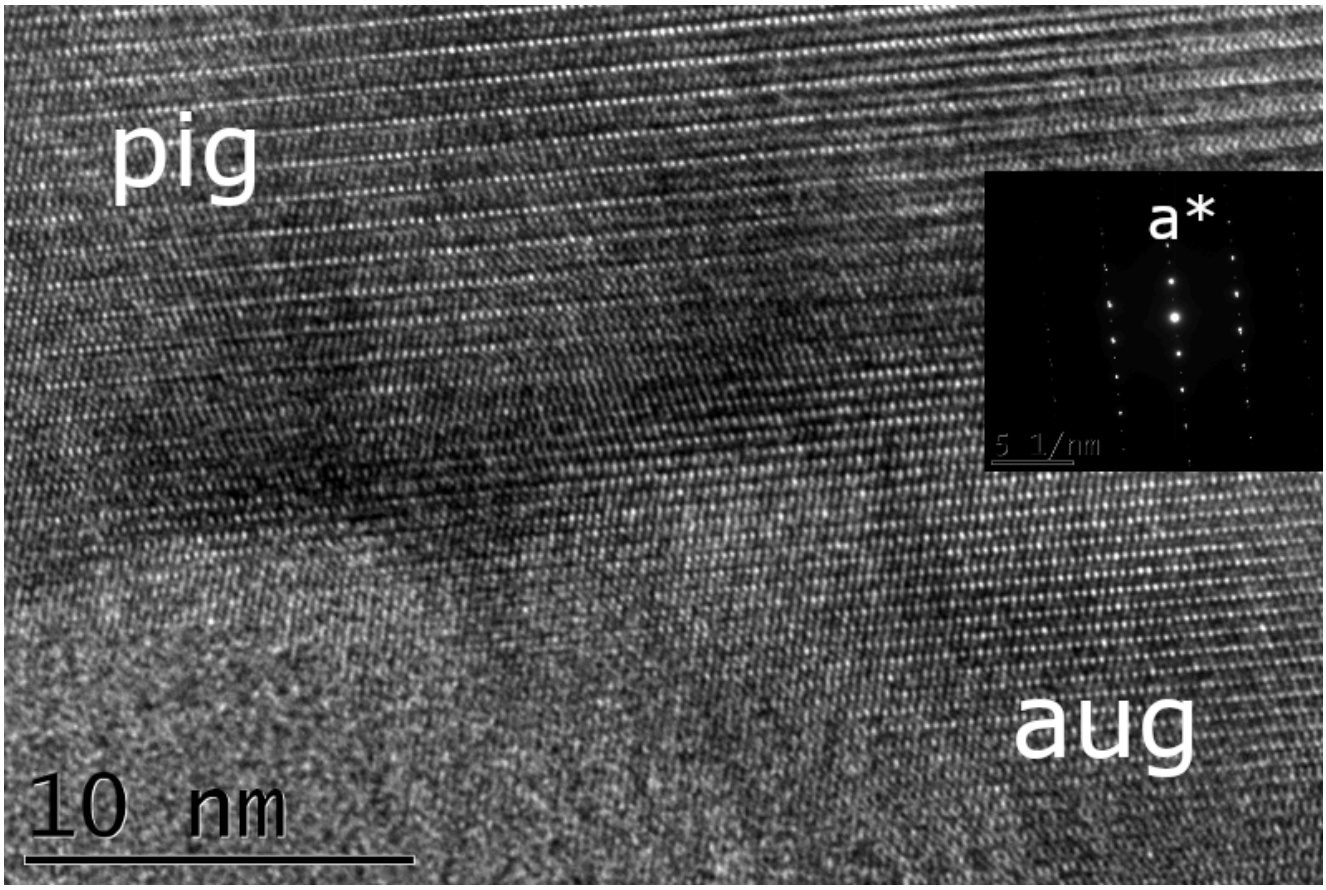
Keywords: olivine, cation site distribution, analytical electron microscopy, ALCHEMI

# Precipitated structures of pyroxene lamellar with various directions

*Shoichi TOH[1]

1. Fukuoka University

Keywords: augite, pigeonite, exsolution, texture



# Crystal chemistry of bridgmanite with Al/Fe contents expected in MORB component

*Akihiko NAKATSUKA[1], Hiroshi FUKUI[2], Seiji KAMADA[3], Naohisa HIRAO[2], Makio OHKAWA[4], Kazumasa SUGIYAMA[5], Takashi YOSHINO[6]

1. Yamaguchi Univ. Sci. Tech. Innov., 2. JASRI, 3. AD Science Inc., 4. Hiroshima Univ. Adv. Sci. Eng., 5. Tohoku Univ. IMR, 6. Okayama Univ. IPM

Bridgmanite (simplified formula $MgSiO_3$) is the most abundant constituent in the Earth’ s lower mantle. The effects of the incorporation of Fe and Al into bridgmanite can have a large effect on the physical properties and rheology of the lower mantle. Bridgmanite formed from a mid-ocean ridge basalt (MORB) component of subducting slabs contains larger amounts of Fe and Al than that formed from a pyrolytic composition. This difference in bridgmanite composition can cause a difference in the incorporation mechanism of Fe and Al into the crystal structure between subducting slabs and their surrounding lower mantle. This should cause heterogeneity in the physical properties and rheology of the lower mantle. Elucidating the crystal chemistry of bridgmanite formed from the MORB composition is a key to resolving this issue. The precise crystal chemistry examined employing a single crystal is, therefore, significant for gaining a detailed understanding of lower-mantle dynamics. In particular, the use of $^{57}$Fe-Mössbauer spectroscopy is indispensable for distinguishing the valence and spin states of Fe, which cannot be directly observed by X-ray diffraction. For this purpose, we characterize $Mg_{0.662}Fe_{0.338}Si_{0.662}Al_{0.338}O_3$ bridgmanite single-crystal, with the Fe and Al contents expected in MORB, by a combination of single-crystal X-ray diffraction, synchrotron $^{57}$Fe-Mössbauer spectroscopy conducted at SPring-8 BL10XU, and electron probe microanalysis.

The present study reveals that the charge-coupled substitution $^{A}Mg^{2+} + {}^{B}Si^{4+} <---> {}^{A}Fe^{3+}$(high-spin) + $^{B}Al^{3+}$ is predominant in the incorporation of Fe and Al into the practically eightfold-coordinated A-site and the sixfold-coordinated B-site in bridgmanite structure. The incorporation of both cations via this substitution enhances the structural distortion due to the tilting of $BO_6$ octahedra, yielding the unusual expansion of mean <A-O> bond-length due to flexibility of A-O bonds for the structural distortion, in contrast to mean <B-O> bond-length depending reasonably on the ionic radius effect. Moreover, we imply the phase transition behavior and the elasticity of bridgmanite in slabs subducting into deeper parts of the lower mantle, in terms of the relative compressibility of $AO_{12}$ (practically $AO_8$) and $BO_6$ polyhedra.

Keywords: Bridgmanite, MORB, Single-crystal X-ray diffraction, Synchrotron Mössbauer

# Mechanism of the pressure-induced crystallization of amorphous calcium carbonate

*Chiho Morita[1], Hiroki Kobayashi[1], Hiroyuki Kagi[1]

1. UTokyo. Sci.

Keywords: Amorphous calcium carbonate, Calcite, High pressure

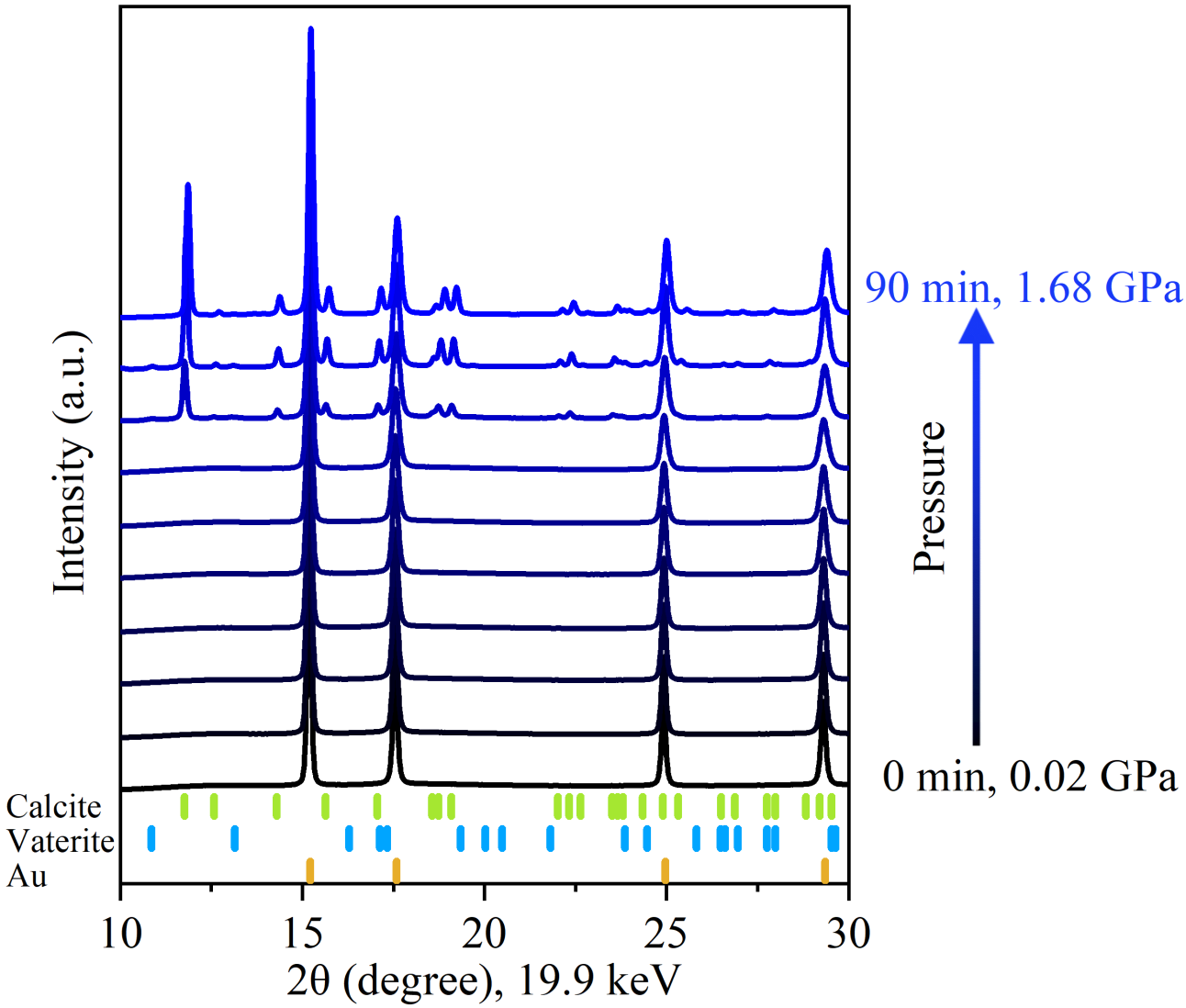


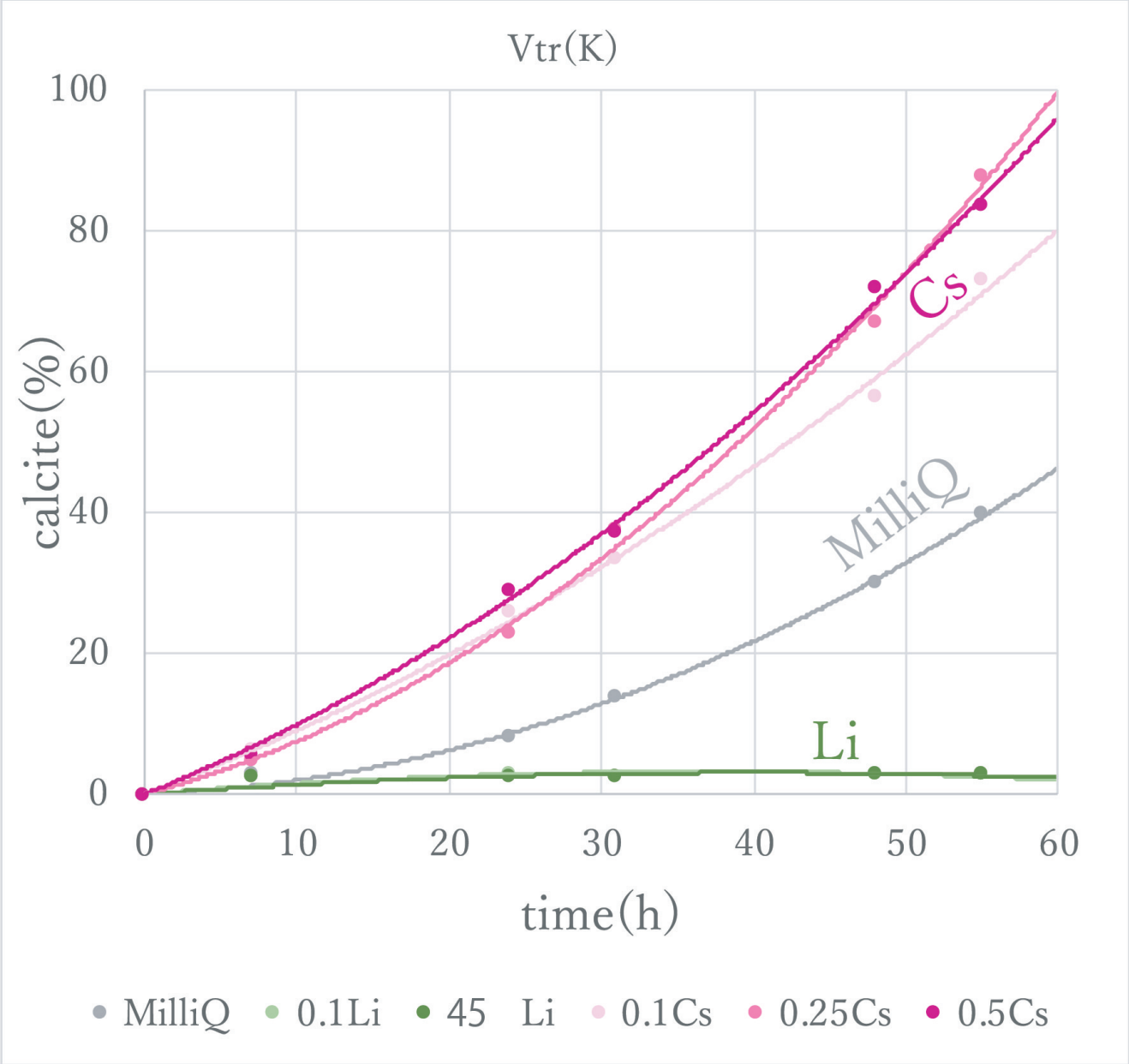

図. ACCの圧力誘起結晶化の時分割X線回折パターン

# Differences in the effects of Li and Cs on the calcitization of vaterite.

*Noboru FURUKAWA[1], Ami Kinoda[2]

1. Chiba University, 2. NIWAKA

Keywords: vaterite, calcitization, Lithium, Cesium



Poster presentation | R5: Extraterrestrial materials

Sat. Sep 14, 2024 12:30 PM - 2:00 PM JST | Sat. Sep 14, 2024 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## R5: Extraterrestrial materials

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R5-P-01] Dehydration of Newberyite($MgHPO_4.3H_2O$) under low pressures

*Yukako Matsumoto[1], Shogo Tachibana[1] (1. UTokyo)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R5-P-02] Experimental simulation of oxygen isotope exchange between chondrule melt and low-pressure water vapor

*Daiki YAMAMOTO[1], Noriyuki Kawasaki[2] (1. Kyushu University, 2. Hokkaido University)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R5-P-03] Early impact events recorded in anomalous eucrites

*Akira YAMAGUCHI[1] (1. National Institute of Polar Research)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R5-P-04] Internal Structure Analaysis of Carbonaceous Material in Yamato 8448 Ureilite

*Masahiro YASUTAKE[1], Megumi Matsumoto[2], Akira Tsuchiyama[3,4], Kentaro Uesugi[1], Akihisa Takeuchi[1], Akira Yamaguchi[5] (1. JASRI, 2. Tohoku Univ., 3. Ritsumeikan Univ., 4. CAS/GIG, 5. NIPR)

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R5-P-05] Effects of initial porosity on shock deformation microstructures in rutile

*Yuhei Umeda[1,2], Yuma Nagai[1,2], Naotaka Tomioka[3], Toshimori Sekine[4], Masashi Miyakawa[5], Takamichi Kobayashi[5], Hitoshi Yusa[5], Takuo Okuchi[1,2] (1. KURNS, 2. Kyoto Univ. Eng., 3. JAMSTEC, 4. HPSTAR, 5. NIMS)

# Dehydration of Newberyite($MgHPO_4.3H_2O$) under low pressures

*Yukako Matsumoto[1], Shogo Tachibana[1]

1. UTokyo

Keywords: Bennu, phosphate, dehydration, asteroid, Newberyite

# Experimental simulation of oxygen isotope exchange between chondrule melt and low-pressure water vapor

*Daiki YAMAMOTO[1], Noriyuki Kawasaki[2]

1. Kyushu University, 2. Hokkaido University

Keywords: chondrule melt, low-pressure water vapor, oxygen isotope exchange, kinetics, protosolar disk

# Early impact events recorded in anomalous eucrites

*Akira YAMAGUCHI[1]

1. National Institute of Polar Research

Keywords: meteorites, achondrites, thermal history, impact

# Internal Structure Analaysis of Carbonaceous Material in Yamato 8448 Ureilite

*Masahiro YASUTAKE[1], Megumi Matsumoto[2], Akira Tsuchiyama[3,4], Kentaro Uesugi[1], Akihisa Takeuchi[1], Akira Yamaguchi[5]

1. JASRI, 2. Tohoku Univ., 3. Ritsumeikan Univ., 4. CAS/GIG, 5. NIPR

Keywords: Ureilite, Diamond, SR-XCT

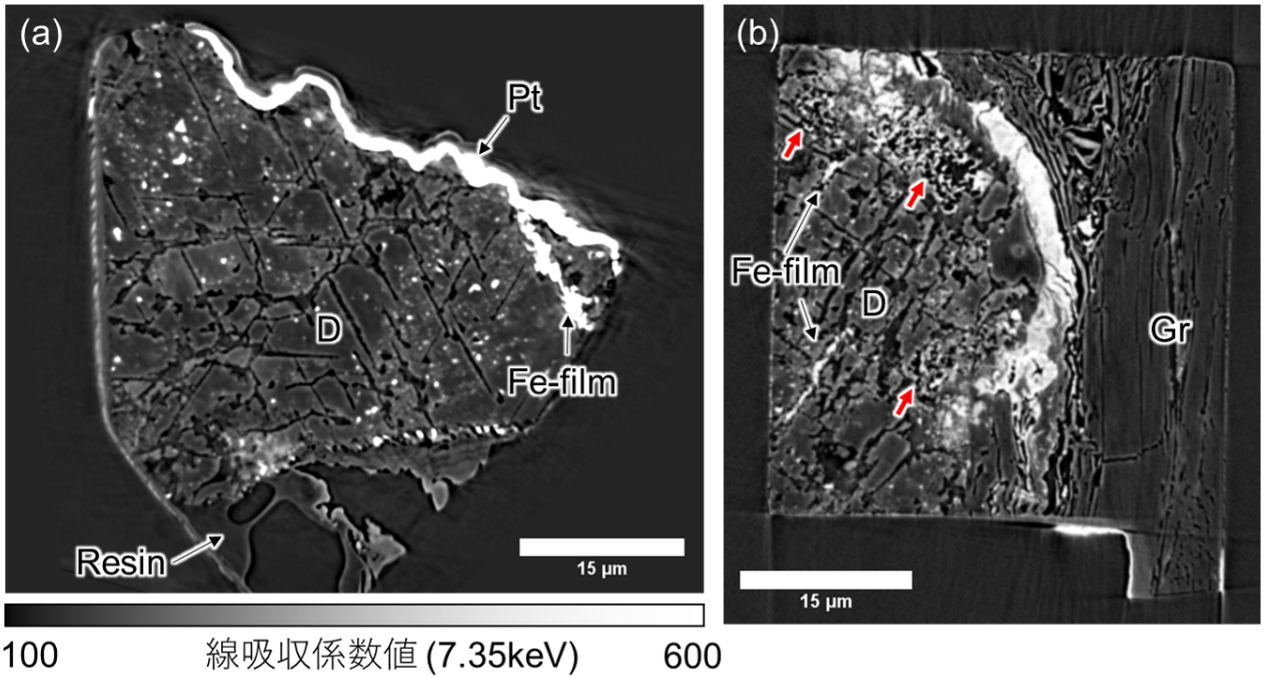



図１．炭素質物質のCT断面像。X線エネルギーは7.35keV。左下に表示コントラストを示す。(a) 黒色部からサンプリングした試料の断面像。60度120度で交わる線構造が確認できる。図中白い粒は鉄に富む包有物である。図中右端にはダイヤを区切る鉄に富む膜が分布している。(b) 境界部からサンプリングした試料の断面像。図中右側にグラファイトから成る茶色部が、左側にダイヤを主体とする黒色部が分布する。図中中央に分布する白色部は鉄に富む層である。茶色部は黒色部と比較し鉄に富む物質に乏しい事が分かる。赤矢印は虫食い状になったダイヤを示す。図中略語：D:ダイヤ、Gr:グラファイト、Pt:プラチナ保護膜、Fe-film:鉄に富む膜、Resin:樹脂。

# Effects of initial porosity on shock deformation microstructures in rutile

*Yuhei Umeda[1,2], Yuma Nagai[1,2], Naotaka Tomioka[3], Toshimori Sekine[4], Masashi Miyakawa[5], Takamichi Kobayashi[5], Hitoshi Yusa[5], Takuo Okuchi[1,2]

1. KURNS, 2. Kyoto Univ. Eng., 3. JAMSTEC, 4. HPSTAR, 5. NIMS

Keywords: Rutile, Shock deformation microstructures, Porosity

Poster presentation | R6: Plutonic rocks, volcanic rocks and subduction factory

Sat. Sep 14, 2024 12:30 PM - 2:00 PM JST | Sat. Sep 14, 2024 3:30 AM - 5:00 AM UTC | Entrance Hall Higashiyama Campus

## R6: Plutonic rocks, volcanic rocks and subduction factory

12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R6-P-01] Orthopyroxene cumulates from a serpentinite mud-volcano in the mariana forearc: constituent rocks of the forearc Moho transition zone

*Pia Ataka[1], Yuji Ichiyama[1], Shun Takamizawa[1], Akihiro Tamura[2], Tomoaki Motishita[2] (1. Chiba University, 2. Kanazawa University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R6-P-02] Formation processes of high-Mg andesite associated with ophiolitic rocks in the Setogawa belt

*Tsumugi Kato[1], Yuji Ichiyama[1], Akihiro Tamura[2], Tomoaki Morishita[2] (1. Chiba Univ., 2. Kanazawa Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R6-P-03] Petrological and geochemical study of volcanics from Kuju volcanic group, Kyushu Island, Southwest Japan Arc.

「発表賞エントリー」

*Soma Yamanaka[1], Tomoyuki Shibata[1], Ryotaro Fujihara[1], Masako Yoshikawa[1], Tomo Shibata[2] (1. Hiroshima Univ. Sci. & Tech, 2. Fukuoka Univ. Sci.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R6-P-04] Petrological study of intrusive rocks and their crustal xenoliths in the Suzu area, Atsumi district, Yamagata

*Kazuhiro Tojo[1], Takashi Hoshide[1] (1. Akita Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R6-P-05] Crystallization conditions of zircon and its crystallization relationship with surrounding minerals in the Tono plutonic complex, Kitakami mountains

*Yasuhiro OGITA[1,2], Shuhei Sakata[3], Takeshi Ohno[4], Tatsunori Yokoyama[2], Satoshi Suzuki[1], Kyoka Endo[1], Takashi Yuguchi[5] (1. Yamagata Univ., 2. JAEA, Tono Geoscience Center, 3. The Univ. Tokyo, Earthquake Research Inst., 4. Gakushuin Univ., 5. Kumamoto Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R6-P-06] Petrography and magmatic processes of a diorite body distributed in the Kawakami region, Yamaguchi Prefecture, Japan

「発表賞エントリー」

*Ryosei Sugiura[1], Keisuke Eshima[1] (1. Yamaguchi University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R6-P-07] Sr–Nd–Hf isotopic systematics for the Habu granodiorite, eastern part of Yamaguchi Prefecture

*Masaaki OWADA[1], Yusaku Akimoto[2], Mariko Nagashima[1], Keisuke Eshima[1], Atsushi Kamei[3], Nobuhisko Nakano[4], Kenta Kawaguchi[5], Yasuhito Osanai[4] (1. Yamaguchi Univ., 2. YON-C, 3. Shimane Uni., 4. Kyushu Univ., 5. Hiroshima Univ.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

### [R6-P-08] Rare earth element compositions and U-Pb zircon age of granodiorite porphyrites in the Noko Island, western part of northern Kyushu

*Masaki YUHARA[1], Yoshinobu KAWANO[2], Kazuhiro TSUKADA[3], Purevdulam SUKHBAATAR[4] (1. Fukuoka Univ. Sci., 2. Rissho Univ. Env. Sci., 3. Nagoya Univ. Mus., 4. Nagoya Univ. Env. St.)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R6-P-09] Compositional changes and growth processes of the Asakura granodiorite, Northern Kyushu, Japan.

「発表賞エントリー」

*Yudai HAMANO[1], Keisuke ESHIMA[1] (1. Yamaguchi Uni. Sci)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R6-P-10] Intrusive relationship and lithofacies classification of Granite–Granodiorite in Eastern Fukuoka Prefecture

「発表賞エントリー」

*Ryo Nakamura[1], Keisuke Eshima[1] (1. Yamaguchi University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R6-P-11] Crystallization processes of quartz in a granitic magma: Implications for the magma chamber processes of Okueyama granite, Kyushu, Japan

*Takashi YUGUCHI[1], Takenori Kato[4], Yasuhiro Ogita[2], Minori Watanabe[6], Asuka Kato[6], Daichi Itoh[6], Tatsunori Yokoyama[2], Shuhei Sakata[3], Takeshi Ohno[5] (1. Kumamoto University, 2. JAEA, 3. Uni. Tokyo ERI, 4. Nagoya University, 5. Gakushuin University, 6. Yamagata University)

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12:30 PM - 2:00 PM JST | 3:30 AM - 5:00 AM UTC

[R6-P-13] Differentiation Processes of Granitic Magma Chamber Recorded in 'Oshima-ishi' Distributed in Oshima, Geiyo islands, Ehime Prefecture

*Kazuya SHIMOOKA[1,2], Soichiro AONO[2], Takahito ONISHI[2], Toko FUKUI[2], Motohiro TSUBOI[1], Toshiro TAKAHASHI[3], Satoshi SAITO[2] (1. Kwansei Gakuin Univ., 2. Ehime Univ., 3. Niigata Univ.)

# Orthopyroxene cumulates from a serpentinite mud-volcano in the mariana forearc: constituent rocks of the forearc Moho transition zone

*Pia Ataka[1], Yuji Ichiyama[1], Shun Takamizawa[1], Akihiro Tamura[2], Tomoaki Motishita[2]

1. Chiba University, 2. Kanazawa University

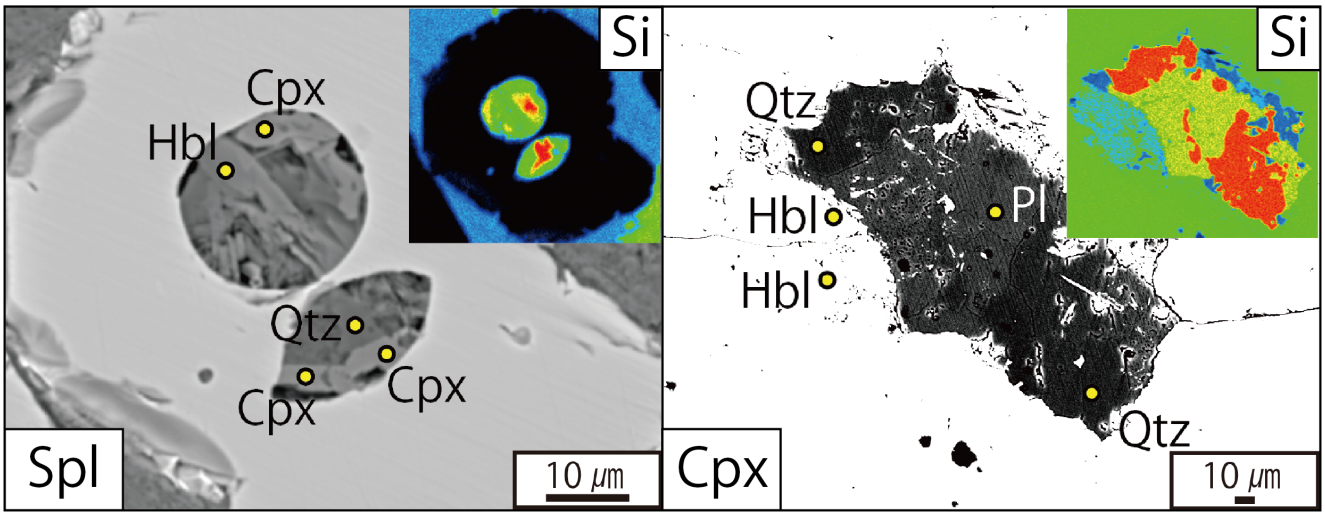
Keywords: Serpentine, Ophiolite, Mariana Forearc, Moho transition zone, cumulate

# Formation processes of high-Mg andesite associated with ophiolitic rocks in the Setogawa belt

*Tsumugi Kato[1], Yuji Ichiyama[1], Akihiro Tamura[2], Tomoaki Morishita[2]

1. Chiba Univ., 2. Kanazawa Univ.

Keywords: high-Mg andesite, Setogawa belt, felsic crystalline inclusions, magma mixing



# Petrological and geochemical study of volcanics from Kuju volcanic group, Kyushu Island, Southwest Japan Arc.

*Soma Yamanaka[1], Tomoyuki Shibata[1], Ryotaro Fujihara[1], Masako Yoshikawa[1], Tomo Shibata[2]

1. Hiroshima Univ. Sci. & Tech, 2. Fukuoka Univ. Sci.

Keywords: modal composition, Kuju, arc magma

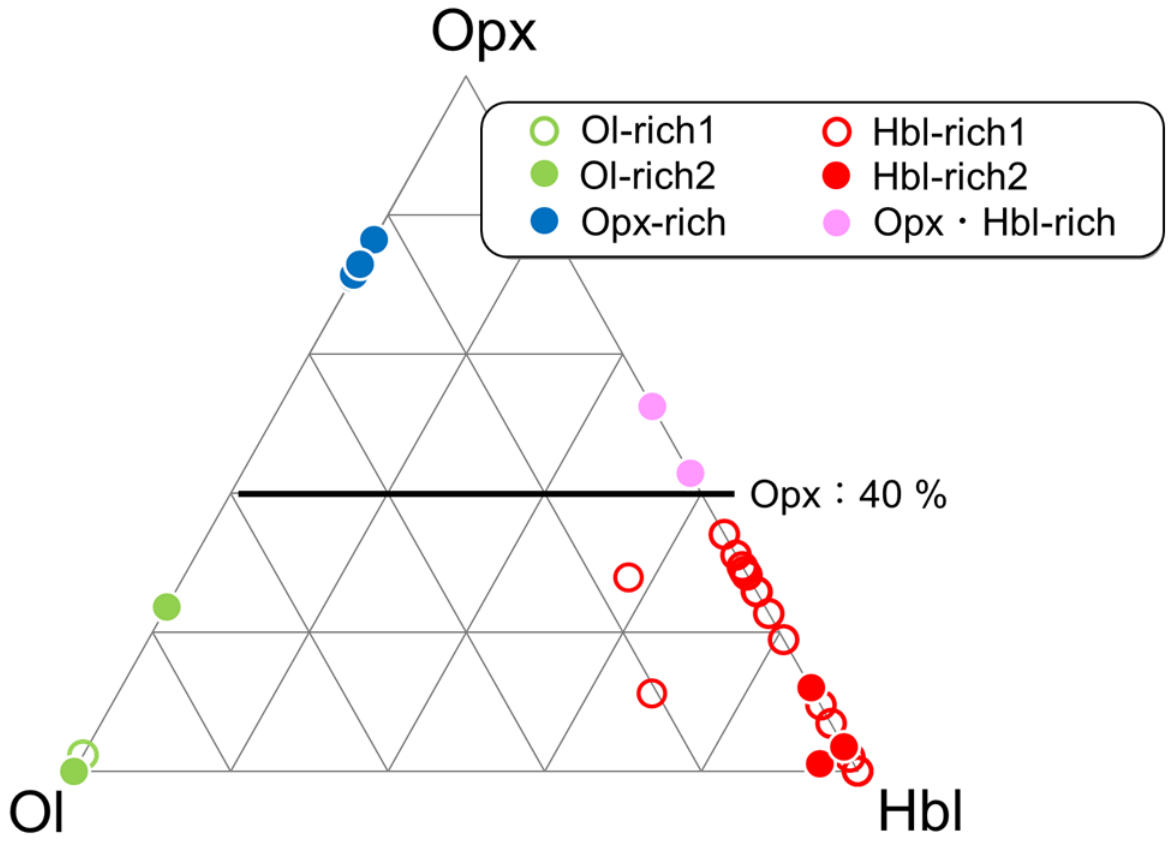



図　九重火山群火山岩類のモード組成。

# Petrological study of intrusive rocks and their crustal xenoliths in the Suzu area, Atsumi district, Yamagata

*Kazuhiro Tojo[1], Takashi Hoshide[1]

1. Akita Univ.

Keywords: Petrology, Xenoliths

# Crystallization conditions of zircon and its crystallization relationship with surrounding minerals in the Tono plutonic complex, Kitakami mountains

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1. Yamagata Univ., 2. JAEA, Tono Geoscience Center, 3. The Univ. Tokyo, Earthquake Research Inst., 4. Gakushuin Univ., 5. Kumamoto Univ.

No abstract in English.

Keywords: Zircon, U-Pb age, Ti concentration, Tono Plutonic Complex

表1　遠野岩体のジルコンの産状と分析数

| 岩相 | サンプル名 | 分析点数 | ジルコン粒子数 | | | | |
|---|---|---|---|---|---|---|---|
| | | | | in Qtz | in Bt | in Afs | 粒間 |
| 中心相 | 025 | 23 | 4 | 1 | 1 | 0 | 2 |
| | 029 | 3 | 1 | 1 | 0 | 0 | 0 |
| | 102 | 11 | 4 | 1 | 0 | 1 | 2 |
| 主岩相 | 021 | 5 | 4 | 1 | 1 | 0 | 2 |
| | 404 | 6 | 3 | 0 | 0 | 0 | 3 |
| | 405 | 31 | 11 | 0 | 3 | 0 | 8 |

in Qtz: 石英に包有されるジルコン，in Bt: 黒雲母に包有されるジルコン，
in Afs: アルカリ長石に包有されるジルコン，粒間: 粒間に産出するジルコン

# Petrography and magmatic processes of a diorite body distributed in the Kawakami region, Yamaguchi Prefecture, Japan

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1. Yamaguchi University

Keywords: Grandiorite, Volcanic-plutonic complex, Kwanmon Group, Shunan Group

# Sr–Nd–Hf isotopic systematics for the Habu granodiorite, eastern part of Yamaguchi Prefecture

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1. Yamaguchi Univ., 2. YON-C, 3. Shimane Uni., 4. Kyushu Univ., 5. Hiroshima Univ.

We performed geological, petrographical, and geochemical investigations including Sr–Nd–Hf isotopic studies for the Habu granodiorite located in the eastern part of Yamaguchi Prefecture, and discussed its magmatic processes and source materials. The laccolithic Habu granodiorite consists mainly of the leucocratic biotite granodiorite (leucocratic facies) surrounded by the thin-skinned hornblende-biotite granodiorite (melanocratic facies). Zircon U–Pb dating gives ages of c. 105 Ma for both lithofacies. Although the whole-rock chemical data of both lithofacies make monotonous trends on some binary plots, the leucocratic facies are slightly affected by crustal contaminations, as evidenced by Sr–Nd isotopic features. Epsilon Hf isotopic model ages revealed that the Habu granodiorite would be derived from the mafic lower crust probably separated from the depleted mantle during the Mesoproterozoic time.

Keywords: Habu granodiorite, Magmatic processes, Source materials, Multi-isotopic systematics, Igneous activities Southwest Japan

# Rare earth element compositions and U-Pb zircon age of granodiorite porphyrites in the Noko Island, western part of northern Kyushu

*Masaki YUHARA[1], Yoshinobu KAWANO[2], Kazuhiro TSUKADA[3], Purevdulam SUKHBAATAR[4]

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Keywords: granodiorite porphyrite, Noko Island, Sr and Nd isotopic composition, Rare earth element compositions, U-Pb zircon age

# Compositional changes and growth processes of the Asakura granodiorite, Northern Kyushu, Japan.

*Yudai HAMANO[1], Keisuke ESHIMA[1]

1. Yamaguchi Uni. Sci

Keywords: Cretaceous, Northern Kyushu batholith, Granodiorite, Lithofacies change, Growth processes

# Intrusive relationship and lithofacies classification of Granite–Granodiorite in Eastern Fukuoka Prefecture

*Ryo Nakamura[1], Keisuke Eshima[1]

1. Yamaguchi University

Keywords: plutonic rock, Cretaceous , plutonic complex, intrusive relationship, magma mixing

# Crystallization processes of quartz in a granitic magma: Implications for the magma chamber processes of Okueyama granite, Kyushu, Japan

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1. Kumamoto University, 2. JAEA, 3. Uni. Tokyo ERI, 4. Nagoya University, 5. Gakushuin University, 6. Yamagata University

Keywords: Quartz, Cathodoluminescence, TitaniQ thermometer, Okueyama granite, Ti-in-zircon thermometer

# Differentiation Processes of Granitic Magma Chamber Recorded in 'Oshima-ishi' Distributed in Oshima, Geiyo islands, Ehime Prefecture

*Kazuya SHIMOOKA[1,2], Soichiro AONO[2], Takahito ONISHI[2], Toko FUKUI[2], Motohiro TSUBOI[1], Toshiro TAKAHASHI[3], Satoshi SAITO[2]

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Keywords: Oshima-ishi, Cretaceous granitoids, Differentiation Processes, Mafic magma, Oshima, Geiyo islands