Visible Photometric, Spectroscopic and Polarimetric observations of an inactive comet, P/2016 BA14 with the 1.6m Pirka Telescope

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We performed photometric, spectroscopic and polarimetric observations of an inactive comet, P/2016 BA14 with the 1.6m Pirka Telescope, Hokkaido.

P/2016 BA14 (a=3.02 au, e=0.67, i=18.9 deg.) was discovered as an unusual asteroid with a cometary orbit by the PANSTAARS on 2016 January 21.Since Knight et al. 2016 detected its cometary tail when the object close to sun(r=1.018au). It was classified into a Jupiter Family Comets. It can be regarded as a bare nucleus invisible coma because very weak comet activity that is different from general comet. There is a remarkable similarity between the orbits of 252P/LINEAR (a=3.05au, e=0.67, i=10.4deg) and P/2016 BA14. Jupiter Tisserand parameter is 252P/LINEAR and that of P/2016 BA14 are 2.82. P/2016 BA14 and 252P/LINEAR is division comet that is originally same comet (Jian-Yang.2017).

In this study, surface reflection properties of P/2016 BA14 classify D-type asteroids (Bus-DeMeo taxonomy) from result of visible spectroscopy (435-820nm). Color of surface is little red as D-type asteroid, but very blue as comet nucleus from result of BVRI photometry. The linear polarization Pr=10.46.±0.11% (α=46°) is in close accord with that of D-type asteroids and comet nucleus.

Keywords: P/2016 BA14, Photometric, Spectroscopic, Polarimetric, D-type

