

The Solar-C_EUVST Mission and Solar Observations in 2020s

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High resolution observations with advanced techniques of the Sun have been improving our knowledge on fundamental physics working in solar dynamical atmosphere, which is full of MHD processes including waves, magnetic reconnection, magneto-convection, and instability. The Solar-C_EUVST mission is a JAXA competitive M-class mission to be developed with participations from NASA and European space agencies. The mission will carry EUV High-Throughput Spectroscopic Telescope, which is an EUV imaging spectrometer with slit-jaw imaging system that will simultaneously observe the solar atmosphere from the photosphere/chromosphere up to the corona with seamless temperature coverage, high spatial resolution, and high throughput for the first time. The mission is designed to comprehensively understand how mass and energy are transferred throughout the solar atmosphere, which would provide an answer to the most fundamental questions in solar physics: how fundamental processes lead to the formation of the solar atmosphere and the solar wind, and how the solar atmosphere becomes unstable, releasing the energy that drives solar flares and eruptions. This is a fundamental step towards answering how the plasma universe is created and evolves, and how the Sun influences the Earth and other planets in the heliosphere. In 2020s, we will acquire new observations from a large variety of new instruments, such as DKIST for high-spatial solar surface observations, Indian and Chinese satellites, Parker Solar Probe to reach less than 10 solar radius, Solar Orbiter in an inclined orbit, PUNCH for polarimetric observations of the outer corona. The Solar-C_EUVST will provide spectroscopic measurements to fill a gap from the solar surface to the outer corona and the heliosphere.

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