## [구SS-01] A Study of P/2010 A2 Dust Cloud : Possibly Impact Triggered Dust Particles

Masateru Ishiguro
*Seoul National University*

Main-belt comets (hereafter MBCs) are one of the hottest topics in the solar system astronomy. They are objects orbiting in the main asteroid belt which show cometary activity. Unlike most comets, which spend most of their orbit beyond 5AU from the Sun, MBCs follow near-circular orbits within the asteroid belt that are indistinguishable from the orbits of major population of the asteroids. P/2010 A2, the fifth MBC, was discovered by on January 6, 2010 by Lincoln Near-Earth Asteroid Research. It passed its perihelion at 2.01AU on December 3, 2009, about a month before it was discovered. With an aphelion of only 2.6 AU, P/2010 A2 spends all of its time inside of the frostline ~2.7 AU.

We made observations of P/2010 A2 with Nishi-Harima Astronomical Observatory 2-m telescope only a week after the discovery. From the observed images, we found that the dust cloud was composed of large particles (>1mm) impulsively ejected between March and June, 2009. No coma was detected by our observations, suggesting that this object was no longer active. Consequently, we conjecture that these dust particles could be released by the impact collision among asteroids.

## [구SS-02] Photometric Observation of the Asteroid-Comet Transition Object 4015 Wilson-Harrington

Myung-Jin Kim[1], Young-Jun Choi[2], and Yong-Ik Byun[1]
[1]*Department of Astronomy, Yonsei University*
[2]*Korea Astronomy and Space Science Institute*

Near-Earth asteroid-comet transition object 4015 Wilson-Harrington is a possible target of the joint European Space Agency (ESA) and Japanese Aerospace Exploration Agency (JAXA) Marco Polo sample return mission. 4015 W-H was discovered showing cometary activity by Albert G. Wilson and Robert G. Harrington at Palomar Observatory in 1949. After recovered in 1979, 4015 W-H has been observed at every apparition, it always was seen as a point source. We made time series observations for 4015 W-H using the 1.8m telescope with 2K CCD at Bohyunsan Observatory, on the nights of 2009 November 17-19. The geocentric distance of 4015 H-W was about 0.38 AU at that time. No trace of cometary activity is seen from our images. From the light curve analysis, we find a double-peaked rotational period of 2.2 hours with amplitude of 0.4 magnitude. Our result is much shorter than previous measurements of 3.6 hours (Harris & Young 1983) and 6.1 hours (Osip et al 1995). We will discuss possible origin of the period variations.