

Update of Imaging Polarimetry Survey on Cometary Dust Coma Activities

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Polarimetry is a powerful tool to study physical properties of cometary dust grains. It is well known that sunlight scattered by dust grains in cometary coma is partially linearly polarized. The polarization degree is a function of complex refractive indices, size distribution, shape, and scattering phase angle of dust grains. Imaging polarimetry of comets gives us a valuable clue to study dust grain activities in cometary coma. It had been recognized that feature of higher linear polarization degree relevant to a dust jet in linear polarization maps of some comets. The feature might indicate the difference of local distribution of size and/or material of dust grains in a coma by the jet activity and so on.

To study such dust grain activities in cometary coma, we have started the optical imaging polarimetry survey on cometary dust coma activities, by using our instrument called "Polarimetric Imager for COmets (PICO)" [1]. In the early phase of this survey, 0.65-m reflector at Gunma Astronomical Observatory and 1-m telescope at Lulin Observatory, Taiwan, were used for observations. Since 2006, our survey has been performed by using the 0.5-m reflector at Mitaka, National Astronomical Observatory of Japan. Up to now, we observed 26 comets/nuclei in total, including 7 short periodic comets and one pair of split cometary nuclei of 73P/Schwassmann-Wachmann. We present the latest results of our polarimetry survey.

[1] Ikeda Y. et al. (2007), *PASJ*, **59**, 1017

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