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### [구 SS-12] Generation of high cadence SDO/AIA images using a video frame interpolation method, SuperSloMo

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We generate new intermediate images between observed consecutive solar images using NVIDIA's SuperSloMo that is a novel video interpolation method. This technique creates intermediate frames between two successive frames to form a coherent video sequence for both spatially and temporally. By using SuperSloMo, we create 600 images (12-second interval) using the observed 121 SDO/AIA 304 Å images (1-minute interval) of a filament eruption event on December 3, 2012. We compare the generated images with the original 12-second images. For the generated 480 images the correlation coefficient (CC), the relative error (R1), and the normalized mean square error (R2) are 0.99, 0.40, and 0.86, respectively. We construct a video made of the generated images and find a smoother erupting movement. In addition, we generate nonexistent 2.4-second interval images using the original 12-second interval images, showing slow motions in the eruption. We will discuss possible applications of this method.

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### [구 SS-13] Near-infrared polarimetric study of near-Earth object 252P/LINEAR: An implication of scattered light from the evolved dust particles

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Comets, one of the least-altered leftovers from the nascent solar system, have probably preserved the primitive structure inside, whereas their surfaces become modified from the initial states after repetitive orbital revolutions around the Sun. Resurfacing makes the surface drier and more consolidated than the bulk nuclei, creating inert refractory dust layer ("dust mantle"). Near-infrared (NIR; 1.25−2.25 m) polarimetry is theoretically expected to maximize contrast of the porosity between inner fresh and evolved dust particles, by harboring more dust constituents in the single wavelength than the optical; thus, intensifies electromagnetic interaction in dust aggregates. Despite such an advantage, only a few studies have been made in this approach mainly due to the limited accessibility of available facilities. Herein, we present our new multi-band NIR polarimetric study of near-Earth object 252P/LINEAR over 12 days near perihelion, together with the results of optical (0.48−0.80m) imaging observations and backward dynamical simulation of the comet. Based on the results, we will characterize the dust properties of the comet and discuss the possible environmental (temperature and UV radiation) effects that could produce the observed phenomena.

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### [구 SS-14] Strong Haze Influence on the 3-micron Emission Features of Saturn

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Since the detection of 3.3-micron PAH (polycyclic aromatic hydrocarbon) and 3.4-micron aliphatic hydrocarbon features in the spectra of Titan (Bellucci et al. 2009; Kim et al. 2011) and Saturn (Kim et al. 2012), respectively, the 3.3-micron feature of gaseous CH4 has been thought to be still the important spectral feature in the 3-micron absorption structures of Titan and Saturn. However, the analyses of the 3.3-and 3.4-micron emission structures of Saturn revealed that the influence of the gaseous CH4 on the structures is rather minimal (Kim et al. 2019). We present synthetic spectra of gaseous CH4, and the PAH and aliphatic haze particles in order to show the degree of influence of their spectra on the 3.3-and 3.4-micron emission structures of Saturn, and we compare these synthetic spectra with currently available observations. We constructed these synthetic spectra using newly developed