Potential Solar System Objects Polarimetric Science using PUNCH

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Oral

Owing to the large FoV of PUNCH NFI/WFI, numerous solar system objects (SSOs) will appear in the images. When SSOs are observed near the Sun, this includes those lying between the observer and the Sun, resulting in a high phase angle (Sun-target-observer angle), i.e., small scattering angle, geometry. I want to emphasize that many previous ground-based polarimetric observational studies struggled significantly to obtain even a single polarization data point of SSOs at this geometry. These efforts often led to interesting publications, including ones I have been involved in (e.g., Ishiguro M. et al. 2017 AJ, Ito T. et al. 2017 NatCo, Kuroda D. et al. 2021 ApJL, to name a few). I will first briefly introduce the techniques I have contributed to with the SPHEREx team that can help locate known SSOs in PUNCH data. Then, I will explain how extracting these pixels—pixels that would otherwise be discarded—can result in valuable polarimetric data for SSOs. Finally, I will briefly touch upon the scientific significance of the PUNCH mission's contribution to SSO science, as a low-hanging fruit bonus.

Presentation file

bach-yoonsoo-presentation.pdf

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