Eleni
Nikou
NRC Research Associate, U.S. Naval Research Laboratory
Robin Colaninno, U.S. Naval Research Laboratory
Phillip Hess, U.S. Naval Research Laboratory
Arnaud Thernisien, U.S. Naval Research Laboratory
Oral
(Virtual Talk)
Coronal mass ejections (CMEs) are one of the major drivers of space weather and tracking their morphology and evolution helps us better understand the physics behind them as well as allows us to better predict their time of arrival at Earth and other locations. Today, there is a great array of instruments that observe the Sun and the heliosphere. After the launch of PUNCH we have the opportunity to not only have additional white light data, but also polarized observations from lower coronal heights extending from NFI out to 180 solar radii through the three WFIs that would provide 3D information of the corona and solar wind.

In this study we focus on semi-automatic reconstructions of CMEs observed by PUNCH using a fitting technique that combines white light observations with the Graduated Cylindrical Shell (GCS) model and spheroid shock point clouds and returns the best value of their geometric parameters along with their uncertainties. The fitting technique has been adjusted to use data from numerous coronagraphs and heliospheric imagers and the PUNCH instruments are the latest addition to the pipeline. PUNCH's polarimetric capabilities go hand in hand with traditional and semi-automatic reconstructions that would help us better constrain the CME envelope and lead to more reliable reconstructions and space weather predictions. We will showcase CMEs observed by PUNCH and semi-automatic reconstructions of the CME ejecta and shock using one or multiple viewpoints, taking advantage of the capabilities each instrument provides.
Presentation file
PUNCH_7_Nikou.pdf
YouTube link
View recording
Meeting homepage
PUNCH 7 Science Meeting
Download Abstract
Invited or Virtual?
(Virtual Talk)