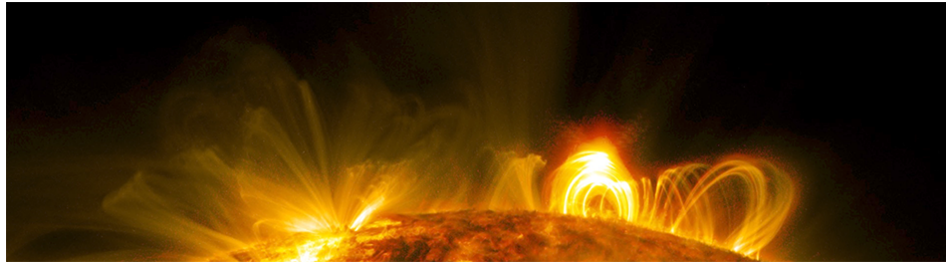


Particle Acceleration in Solar Flares and the Plasma Universe – Deciphering its features under magnetic reconnection



Contribution ID: 16

Type: **Invited talk**

Direct High-Resolution Imaging of Exoplanets with the Solar Gravitational Lens

Monday, 15 November 2021 10:45 (30 minutes)

Nature has presented us with a very powerful “instrument” that we are yet to explore and put to use. This instrument is the Solar Gravitational Lens (SGL), which results from the ability of the gravitational field of the Sun to focus light from faint, distant targets. In the near future, a modest telescope with a coronagraph could operate in the focal region of the SGL and, using enormous amplification provided by the Lens, could provide multipixel images of exoplanets. We discuss the imaging properties of the SGL and introduce a mission concept to the SGL focal region that could provide us with direct, high-resolution images and spectroscopy of a potentially habitable Earth-like exoplanet. A meter-class telescope could yield $\sim(250 \times 250)$ -pixel images of an “Earth 2.0” at distances up to 30pc with spatial resolution high enough to see its surface features. We address some aspects of mission design and spacecraft requirements, as well as capabilities needed to fly this mission in the next two decades. We also discuss technologies for fast transit through the solar system that will be demonstrated during our ongoing NIAC Phase III study. For background, please check: <https://www.youtube.com/watch?v=NQFqDKRAROI>

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Session Classification: Day 1 / Session 2