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O5.401 Opportunities for plasma physics experiments on the new lunar orbiting manned international space station

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In 2023 the first element of a new international space station is to be launched. The Lunar Orbital Platform-Gateway (LOP-G), or Deep Space Gateway (DSG) will orbit the Moon rather than the Earth [1]. The purpose of the Gateway is to acclimatise crew and technology for long durations and radiation exposure of deep-space missions far from the Earth.
The Gateway will offer the opportunity to deploy additional plasma instrumentation on 'cube'or 'nano'satellites. Previous work [2] has shown how features like the lunar crustal magnetic anomalies can be used as natural laboratory-type experiments in space due tothe number of in-situ missions thathave made observations and thefixed footprint of the magnetic fieldsources.
The Gateway will offer the opportunity to conduct active and passive plasma physics experiments in a low density, collisionless plasma environment. Active plasma experiments are also being considered.
In this presentation I will outline some interesting ideas and topics that will take advantage of this opportunity to investigate plasmas far from equilibrium.

References
[1] NASA updates Lunar Gateway plans. (Sept (2018).
[2] Bamford, R. A., et al. ApJ 830.2 (2016): 146.

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