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Rarefied Gas Ejection as a Thrust Mechanism for Miniature Electric Space Propulsion Systems

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Abstract content
 (Max 300 words)

We aim to model the physical mechanisms responsible for the observed thrust of a miniature electric propulsion system to be used in space applications. The thruster operates by ejecting gas through a small orifice at high electrical potential, where corona ionisation is responsible for ionisation of neutrals and subsequent acceleration of the created ions. In this context, we consider the emission of a rarefied gas from a circular orifice into vacuum which may impinge on a flat plate surface parallel to the orifice's plane some distance away from it. Such a model can provide important parameters used for a systematic description of the thrust mechanism, such as a density and temperature profile of the plume, and will facilitate a computational simulation.

Apply to be
 consider for a student
 award (Yes / No)?

yes

Level for award
 (Hons, MSc,
 PhD)?

MSc

Main supervisor (name and email)
and his / her institution

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Would you like to
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no

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