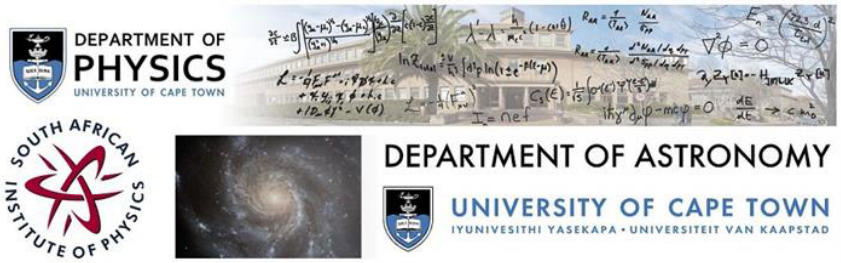

Contribution ID: **249** Type: **Oral Presentation**

Characterization of a Direct Current Discharge Based Microthruster

Tuesday, 5 July 2016 11:10 (20 minutes)

Abstract content
   (Max 300 words)
Formatting &
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A novel electrical micro-thruster is currently being developed at the University of the Witwatersrand and is intended to be used commercially on small satellites and deep space probes. The system utilizes a coupling of the ionization and acceleration mechanisms to achieve miniaturization. A direct current glow discharge is used to generate a plasma which is then exploited to generate thrust. Proof of concept testing has shown that the system operates in the expected manner. A thrust balance has been developed to measure the amount of thrust generated by the system and will be discussed. Thrust measurements using air as a propellant have been performed and the results of these tests will be presented. A computational model has been developed in COMSOL Multiphysics in an attempt to understand the physical phenomena that result in thrust generation and the features and results of the model will be discussed. Future work and attempts to develop the concept into a workable prototype will be presented.

Apply to be
 considered for a student
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Yes

Level for award
 (Hons, MSc,
   PhD, N/A)?

PhD

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

Dr. Philippe Ferrer, philippe.ferrer@wits.ac.za, University of the Witwatersrand

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