



Contribution ID: 221

Type: Oral Presentation

## The effect of an ion beam on ion-acoustic supersolitons

Wednesday, 1 July 2015 11:50 (20 minutes)

**Abstract content** <br> &nbsp; (Max 300 words) <br> <a href="http://events.saip.org.za/getFile.py/?target=\_blank">Formatting & <br> Special chars</a>

Supersolitons are electrostatic nonlinear structures which have subsidiary extrema in the bipolar electric field signatures. They are known to occur in a plasma with two electron components having different temperatures. In this study we will investigate supersolitons in a plasma consisting of positively charged (stationary) cold ions, a positively charged cold ion beam and cool and hot electrons. The weak beam ions are assumed to drift in the direction of the magnetic field as is the direction of propagation of the solitons. The main focus of the study will be to examine the effect of beam speed and beam concentration on the parametric existence regions of supersolitons.

**Apply to be** <br> **considered for a student** <br> &nbsp; **award (Yes / No)?**

No

**Level for award** <br> &nbsp; **(Hons, MSc, <br> &nbsp; PhD, N/A)?**

N/A

**Main supervisor (name and email)** <br> **and his / her institution**

N/A

**Would you like to** <br> **submit a short paper** <br> **for the Conference** <br> **Proceedings (Yes / No)?**

No

**Please indicate whether** <br> **this abstract may be** <br> **published online** <br> **(Yes / No)**

No

**Primary author:** Dr OLIVIER, Carel (SANSA)

**Co-authors:** Prof. HELLBERG, Manfred (UKZN); Dr MAHARAJ, Shimul Kumar (South African National Space Agency (Space Science) (formerly NRF Hermanus Magnetic Observatory))

**Presenter:** Dr OLIVIER, Carel (SANSA)

**Session Classification:** Space

**Track Classification:** Track D2 - Space Science