



Contribution ID: 6

Type: **not specified**

Plasma in-situ production of fuels and oxygen on Mars

Thursday 6 February 2020 09:22 (11 minutes)

Sending a manned mission to Mars is one of the next major goals in space exploration. Since travelling to the Red Planet is a challenging endeavour, a justified interest has emerged in *in-situ* resource utilisation (ISRU) on Mars, with the possibility of harnessing local abundant atmospheric CO₂ and converting it into breathable oxygen (O₂) for a future outpost and carbon monoxide (CO), to be used in rocket propellant production. Martian atmosphere favours the vibrational excitation and subsequent up-pumping of the asymmetric stretching mode, which constitutes a key factor for an energy-efficient plasma dissociation, making plasma technology a strong candidate to perform the CO₂ conversion. The aim of this project is to characterize the plasma discharge experimentally and develop a self-consistent kinetic model for the ternary CO₂/N₂/Ar Martian mixture.

Author: RAPOSO, Gonalo (IST)

Presenter: RAPOSO, Gonalo (IST)