



UNIVERSITÀ
DI TRENTO

Dipartimento di
Fisica



PhD Program in Space Science and Technology - SST

**Magnetosphere-Ionosphere coupling during solar active conditions in
terms of current systems.**

**Specific Seminar – Curriculum 2
2023, September 18, 3 p.m.**

Speaker:

Dr. Mirko Piersanti. Physical and Chemical Science Dept. University of l'Aquila

Abstract:

The Solar Wind-Magnetosphere-Ionosphere coupling constitutes an important subject of scientific interest, in particular in the Space Weather context. Briefly, in this process, the energy is transferred from the solar wind to the magnetosphere by means of both the magnetic reconnection at the dayside magnetopause and the viscous-like interaction generated by micro or macro instabilities. On the other hand, the magnetosphere and the ionosphere, strictly connected through the magnetic field lines, can exchange energy and momentum, basically, through three main processes: (1) the transmission of electric fields, (2) the flows of electric charges by means of Field Aligned Current (FAC) and (3) the precipitation and/or outflow of particles. Here, some aspects of the interaction of the interplanetary coronal mass ejections (ICME) with the magnetosphere-ionosphere system will be shown. In particular, the response of the magnetosphere to the impact of the interplanetary shock preceding the ICME, the magnetospheric and the ionospheric disturbance currents and the geomagnetically induced currents (GIC) will be discussed. Application to the real case event of September 2017 geomagnetic storm will be shown.

Online attendance:

Link: <https://univaq.webex.com/meet/mirko.piersanti>

Prof. Vincenzo Carbone

University of Calabria – Department of Physics

vincenzo.carbone@fis.unical.it

**National PhD in Space Science and Technology -
Secretariat**

+39 0461 281504

dn_sst@unitn.it