

# SEMINÁRIO DE MECÂNICA

## Broadening of droplet spectra and stochastic activation in turbulent atmospheric clouds

**Gustavo C. Abade**

Faculty of Physics, University of Warsaw, Poland

19/09/18

16:00 Horas

Auditório do MAT

**Abstract.** Precipitation in warm (ice-free) clouds can only be initiated after the droplet-size distribution evolves to include a spread of sizes and fall speeds. This talk presents stochastic simulations of the evolution of the cloud droplet-size distribution under the influence of cloud turbulence, entrainment, and activation of entrained cloud condensation nuclei (CCN). In consistency with previous large-eddy simulations, our idealized model reproduces broadening of the droplet size distribution towards smaller sizes due to permanent insertion of environmental CCN. Turbulence plays a key role in stochastically activating cloud droplets under unsaturated conditions, broadening the spectrum towards larger sizes and producing precipitation embryos.