

## **Title: "Chondrule formation: A controversial issue among different models"**

### **Abstract:**

Chondrites are the most primitive meteorites that preserve useful information about the time the Solar System formed, about 4.56 Ga ago. One of their major constituents are chondrules, ~µm to mm sized spherical objects which constitute up to 80% of the volume of the most primitive meteorites and are composed mainly of ferromagnesian silicates. The process/es involved in chondrule formation cover a wide range of mechanisms whose nature is still unknown. I will discuss the two principal models that are outlined concerning the origin of chondrules in the solar nebula. There is no real consensus regarding the nature of the initial liquid droplets from which chondrules are supposed to be formed, nor about the different processes that were active during and after chondrule formation. An alternative model: the Primary Liquid Condensation (PLC) model can explain the growth of single crystals through a process in which liquid condenses first and then nucleates a crystal of the species that is oversaturated in the vapor. This process refers to a vapor-liquid-solid growth process that take place in equilibrium with a chondritic reservoir. Finally, I will inform of the first glass inclusion hosted in spinel within a glass-rich chondrule from the unequilibrated ordinary chondrite Catalina 278 (LL3.4). A possible sample of the initial liquid trapped during spinel growth.