

Avviso di Seminario

Mercoledì 05 ottobre 17:15 Sala Riunioni (1)

Ernst Zinner

Professor
Washington University of St Louis, USA

Terrà un seminario dal titolo :

"isotopic compositions of SN stardust grains and discrepancies with SN models."

Abstract :

The isotopic analysis of individual grains of stardust extracted from primitive meteorites has provided a wealth of information on stellar nucleosynthesis, stellar mixing, and Galactic Chemical Evolution. A fraction of the grains have isotopic signatures indicating an origin in core-collapse supernovae. While the basic signatures of these grains are reproduced by theoretical models, in detail there are many discrepancies. One example is the positive correlation between $^{12}\text{C}/^{13}\text{C}$ ratios and inferred $^{26}\text{Al}/^{27}\text{Al}$ ratios in SiC grains. From the model calculations of these ratios in the He/C and He/N zone one would expect a negative correlation. Another example is the $^{29}\text{Si}/^{28}\text{Si}$ ratio in such grains, which is much higher than models predict. A third example is given by the lack of ^{54}Fe excesses in SN SiC grains with large ^{28}Si excesses. The Si/S zone, which contains almost pure ^{28}Si , is predicted to have a large abundance of ^{54}Fe . A final example is provided by SiC grains with large $^{29,30}\text{Si}$ excesses (i.e., deficits in ^{28}Si) but excesses in ^{32}S . In SN models ^{32}S excesses are predicted to be accompanied by ^{28}Si excesses. The last two examples indicate that elemental fractionation processes play an important role during SN explosions.

Il Direttore
Dr. Pasquale Lubrano