LABORATORI NAZIONALI DEL GRAN SASSO

SEMINAR ANNOUNCEMENT

On **March 19, 2009**, at **2:30** pm, **N. Weiner** from **New York University (USA)** will give a seminar entitled:

"Implications of PAMELA for Direct Detection Experiments"

Abstract

The recent results of the PAMELA satellite have shown an excess in cosmic ray positrons at high energies. While such signatures are expected from WIMP annihilation, the size, shape and lack of an associated anti-proton signal makes it difficult for standard neutralinos to explain. In this talk, I will review a class of models with Sommerfeld enhancements, which have higher annihilation rates, and explain the other features of PAMELA easily. In such theories, dark matter often has excited states in the 100 keV - 1 MeV range. Because WIMP-nucleus scatterings involve these excited states, the kinematics and expectations for direct detection experiments is dramatically changed. In particular, the spectra of events peak at high (~30+ keV) energies, and annual modulation is significantly enhanced. Moreover, in such models, the DAMA annual modulation signal is consistent with results from CDMS, XENON10, CRESST, ZEPLIN and KIMS. I will discuss the range of scenarios and possible implications for upcoming direct detection experiments.

("B. Pontecorvo" room)