

LABORATORI NAZIONALI DEL GRAN SASSO

SEMINAR ANNOUNCEMENT

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***Biological Cells as
Radiation Sensors: How
Low Can they Go at Gran
Sasso & WIPP?***

Can biological cells sense and respond to unnaturally low levels of radiation? In collaboration with L. Satta and A. Tabocchini, experiments have been set up at the Laboratori Nazionali del Gran Sasso to mirror work at U.S. Waste Isolation Pilot Plant (WIPP, outside of Carlsbad, New Mexico). We are studying the biological effects of radiation “from the other side of background”, that is, at radiation levels significantly below background. At WIPP, there has been a consistent trend of different cell types to grow more slowly under reduced radiation conditions, but the effect is subtle and the experimental noise can be high. Interestingly, when bacteria grown in reduced levels of radiation were transferred to higher background levels, there was a growth stimulation. Germanium detector spectra from different underground locations at WIPP will be presented. In a related study, we are developing methods to test for the presence of Permian-age life within the WIPP Salado formation brine inclusion water, and a few interesting photos of life-like forms present in the halite salt crystals will be shown.

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