



## LNGS SEMINARS

# Three seminars of visiting scientists from VIP Collaboration

**Andreas Pichler, SMI - Vienna (Austria)**

Title:

**First results from VIP2 in the search for the violation of the Pauli Exclusion Principle for electrons**

Abstract:

We present the VIP2 experimental method to look for possible small violations of the Pauli Exclusion Principle (PEP) for electrons, through the search for "anomalous" X-ray transitions in copper atoms, produced by "fresh" electrons (brought inside the copper bar by circulating current) which can have the probability to do the Pauli-forbidden transition to the 1 s level already occupied by two electrons. We describe the VIP2 (Violation of PEP) setup which is presently taking data at the Gran Sasso underground laboratories, searching for these Pauli-prohibited transitions. We will report the preliminary VIP2 achieved results, showing a limit better than the previous VIP one, together with future plans.

**Johann Marton, SMI - Vienna (Austria)**

Title:

**Experimental tests, results and interpretations**

Abstract:

In this talk an overview about experimental tests of the Pauli Exclusion Principle for different systems and based on different methods will be presented. The results of these studies and the interpretations will be discussed.

**Johann Zmeskal, SMI - Vienna (Austria)**

Title:

**X-ray and gamma-ray detector systems for high precision measurements: from SDD to Transition Edge Sensors**

Abstract:

We shall present the newly developed Silicon Drift Detectors for high precision X-ray spectroscopy, which were developed within the SIDDHARTA-VIP Collaboration, and the Transition Edge Sensors under development for extreme X and gamma-ray precision measurements. We shall discuss the technical characteristics of these new detector systems and will present first measurements performed with them. Also, we will discuss possible applications for future experiments searching for rare events originating from Beyond Standard Model physics at the LNGS-INFN laboratory.

November 10, 2017 - 11:00 am  
LNGS - "B. Pontecorvo" room