Contribution ID: **138** Type: **Poster presentation**

Search for a violation of the Pauli Exclusion Principle with electrons at LNGS

Tuesday, 12 September 2017 18:00 (1 hour)

The Pauli Exclusion Principle (PEP) is the foundation for our understanding of physics where systems of fermions are concerned. Therefore, it is important to make precision tests of the PEP. In a pioneering experiment, Ramberg and Snow supplied an electric current to a Cu target, and searched for PEP violating atomic transitions of the "fresh" electrons from the current. The non-existence of the anomalous X-rays from such transitions then set the upper limit for a PEP violation. The VIP2 (VIolation of Pauli Exclusion Principle) experiment improves this method. The experiment and the preliminary results from the first data taking period in the underground laboratory of Gran Sasso (LNGS) will be presented.

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Session Classification: Poster

Track Classification: Leptonic atoms: QED and gravity