Abstract Submitted
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Test of the validity of the spin statistics with X-ray spectroscopy - VIP2 at LNGS Gran Sasso[1] JOHANN MARTON, Stefan Meyer Institute, VIP2 COLLABORATION — We are experimentally investigating possible violations of standard quantum mechanics predictions in the Gran Sasso underground laboratory in Italy. We test with high precision the Pauli Exclusion Principle and the collapse of the wave function (collapse models). We present our method of searching 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 undergo Pauli-forbidden transition to the 1 s level already occupied by two electrons and we describe the VIP2 (VIolation of PEP) experiment under data taking at the Gran Sasso underground laboratories. In this talk the new VIP2 setup installed in the Gran Sasso underground laboratory will be presented. The goal of VIP2 is to test the PEP for electrons with unprecedented accuracy, down to a limit in the probability that PEP is violated at the level of 10E-31. We show preliminary experimental results and discuss implications of a possible violation.

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