

First results of the VIP2 experiment

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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 “fresh” electrons from the current [1]. The non-existence of the anomalous X-rays from such transitions then set the upper limit for a PEP violation. The VIP (VIolation of Pauli Exclusion Principle) experiment could set this upper limit to 4.7×10^{-29} [2] with the described method. The follow-up project VIP2 improves experimental parameters with the goal to set an even lower limit. First results were presented in [3], which could already improve the limit provided by VIP. The VIP2 experiment and the newest results from a longer data taking period in the underground laboratory of Gran Sasso (LNGS) will be presented.

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