

VIP: an experiment to search for a violation of the Pauli Exclusion Principle.

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The Pauli Exclusion Principle (PEP) is a basic principle of Quantum Mechanics, and its validity has never been seriously challenged. However, given its importance, it is very important to check it as thoroughly as possible. Here we describe the VIP (Violation of PEP) experiment, an improved version of the Ramberg and Snow experiment [1]; VIP has just completed the installation at the Gran Sasso underground laboratories, and aims to test the Pauli Exclusion Principle for electrons with unprecedented accuracy, down to $\beta^2/2 \approx 10^{-30} - 10^{-31}$. We report preliminary experimental results and briefly discuss some of the implications of a possible violation.

[1] Ramberg and Snow, Phys. Lett. **B238** (1990) 438.

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