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Testing the Pauli Exclusion Principle for electrons

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The Pauli Principle represents one of the most important rules in physics and explains numerous phenomena in physics as well as characteristic properties of matter, like its stability. Testing the validity of this principle at the highest possible sensitivity is a challenging experimental task - the VIP experiment at the Gran Sasso underground laboratory aims at a limit of the order of 10^{-29} to 10^{-30} . The method is based on the search for Pauli-forbidden x-ray transitions in a pure copper conductor using silicon x-ray detectors with high resolution in energy. The experimental setup, results obtained so far and new ideas to further enhance the sensitivity will be presented.

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