

## ***Gravity tests with slow neutrons***

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In the last decades, gravity experiments have been experiencing a renaissance for several reasons: Modern astronomical observations clearly point to the existence of Dark Energy and Dark Matter. Their true nature and content remain a mystery however. Furthermore, prominent candidates to formulate a consistent quantum theory of gravitation require extra spatial dimensions.

Slow neutrons are the ideal tool to contribute to answering such fundamental questions, as they are electrically neutral and only hardly polarizable.

In my presentation, I will review various gravity experiments with slow neutrons, and discuss their contribution to the fundamental understanding of our Universe. Here, I will mainly focus on the weak equivalence principle in the quantum range, and searches for specific models of Dark Matter and Dark Energy. I will also discuss presently known limitations of these experiments.