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Determination of the sensitivity of the DEAP-3600 experiment to supermassive charged gravitinos

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Current experiments have not yet led to the discovery of dark matter with particle masses of the order of eV (for axion dark matter) up to the TeV scale (for WIMPs). An unconventional idea is gaining popularity that dark matter may consist at least in part of a rarefied gas of stable gravitinos with masses of the order of the Planck mass and fractional charge. These particles would interact with ordinary matter but could not decay into it.

In this talk I will show that large underground detectors based on noble gas scintillation are perfectly suited for searching for supermassive charged gravitinos and present sensitivity study for DEAP-3600 detector based on dedicated Monte Carlo simulation.

Collaboration you are representing

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