

A futuristic hill-contained vertically positioned gravity decelerator spanning 2,300 meters for detection of dark matter and gravitational waves

In this paper, we delineate the engineering hurdles and envisaged an infrastructure of a newly proposed hill-contained, vertically positioned Gravity Decelerator. This decelerator possesses several attributes, specifically: (a) a 2,300 meters-long vertical vacuum tube designed for decelerating a low-energy beam of heavy ions and protons, facilitated by gravity; (b) a 12 meter diameter, Dark Matter and Gravitational Waves detectors situated at the top end of the vacuum tube; and (c) a low-energy linear accelerator for accelerating heavy ions and protons, respectively, positioned at the bottom end of the vertical vacuum tube. This newly envisioned facility aims to achieve the following objectives: (i) detection of Dark Matter; (ii) identification of low-energy Gravitational Waves; and (iii) investigation of Ordinary Matter-Dark Matter interactions.

Primary author: Mr SINHA, Aayush (Indian Youth Nuclear Society, India)

Co-author: Dr SHANKAR, Rahul (University of Ferrara, Italy)

Presenters: Mr SINHA, Aayush (Indian Youth Nuclear Society, India); Dr SHANKAR, Rahul (University of Ferrara, Italy)

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