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Unveiling the Secrets of the Universe: iDMEu Initiative - Exploring Axion-like Particles in Dark Matter Research

Dark Matter research constitutes a significant scientific challenge, motivated by several gravitational phenomena that cannot be explained by visible matter alone. Dark matter makes up almost 85% of the mass and 27% of the total energy density of the Universe, which is five times higher than that of ordinary matter. To explain the various observations, several dark matter candidates have been put forth, and there is a worldwide effort to detect a signature of Dark Matter experimentally. However, after decades of research efforts, we still only have a limited understanding of this enigmatic entity that constitutes the majority of our Universe.
The Initiative for Dark Matter in Europe and Beyond, iDMEu, is an initiative that emphasizes the importance of collaboration and result-sharing to advance research in this field. This initiative was created by a group of theorists and experimentalists from different domains of DM research to facilitate collaboration through the creation of a **single, comprehensive portal** for DM search results.
In particular, this poster highlights the search results for **Axions** and **Axion-Like-Particles (ALPs)** as Dark Matter candidates. Axions arise from the solution to the Peccei-Quinn solution to the Strong CP Problem in Quantum Chromodynamics and constitute one of the prime candidates for Dark Matter detection searches. The work presented here summarises my contribution to the iDMEu project.

Affiliation de l'auteur principal

Indian Institute of Science, Bengaluru

Auteur principal: M. ARYAMAN, Bhutani (Indian Institute of Science, Bengaluru)

Orateur: M. ARYAMAN, Bhutani (Indian Institute of Science, Bengaluru)

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Classification de thématique: Soumission hors Mini-colloque (uniquement pour posters)