Dr. Saranya Ghosh, as member of the CMS experimental collaboration, named as a laureate for the Fundamental Physics Breakthrough Prize along with other LHC based experimental collaboration members

The Fundamental Physics Breakthrough Prize, one of the most prestigious global awards in the field of Physics, has been awarded to the Compact Muon Solenoid (CMS) experimental collaboration that has active participation from researchers from the Department of Physics at IIT Hyderabad.

Also known as Fundamental Physics Prize, this prize is awarded to physicists from theoretical, mathematical, or experimental physics that have made "transformative contributions to fundamental physics and specifically for recent advances". The 2025 Breakthrough Prize has been awarded to the co-authors of publications from the large experimental collaborations based at the Large Hadron Collider at CERN, that is the CMS, ATLAS, ALICE and LHCb experimental collaborations. The prize was awarded to the collaborations for their "detailed measurements of Higgs boson properties confirming the symmetry-breaking mechanism of mass generation, the discovery of new strongly interacting particles, the study of rare processes and matter-antimatter asymmetry, and the exploration of nature at the shortest distances and most extreme conditions at CERN's Large Hadron Collider".

Researchers, including faculty members and students, from the Department of Physics at IIT Hyderabad have been actively working on the CMS experiment, on research areas such as studies of the Higgs boson, search for new fundamental particles and forces, and particle reconstruction at detectors amongst others. Dr. Saranya Ghosh, Assistant Professor with the Department of Physics at IIT Hyderabad, is listed as one of the laureates of the Fundamental Physics Breakthrough Prize 2025 on their webpage as a member of the CMS Collaboration. Each of these large global experimental collaborations awarded have several personnel consisting of scientists, research students and engineers belonging to prestigious institutions across the world collaborating to achieve such breakthrough scientific research. Researchers from IIT Hyderabad working in the field of particle physics, consisting of both theorists and experimentalists, continue to perform cutting-edge fundamental research to unearth the mysteries of nature and to gain a deeper understanding of the fundamental laws that govern the universe. On the experimental side, particle physics detector development and development of novel particle reconstruction techniques, often using advanced computational tools and machine learning techniques, are also pursued at IIT Hyderabad alongside research on fundamental particle physics.

IITH Group working on the CMS experiments