

Department of Physics and Astronomy



Summer 2019— Dr. Jung's Group

Ample opportunities exist to contribute to the research and development of the High-Luminosity upgrade for the CMS detector. The Purdue Silicon Detector Laboratory (PSDL) is an in house facility with two clean rooms used to assemble and test silicon pixel modules using a robotic gantry and high precision probe stations. The group is currently focused on the design and manufacturing of small and large support structure prototypes made from carbon fiber laminates, carbon foam, and silicon pixel mock-ups. The silicon pixel detector prototypes are tested to determine the thermal performance in the same conditions they will be exposed to in the CMS detector. The production and testing of these prototypes is done in our own labs and the Composite Manufacturing & Simulation Center with equipment such as a vacuum curing ovens, autoclave, gantry, a precision coordinate measuring machine, and a two-phase CO₂ cooling system.