THE
CATHOLIC UNIVERSITY
of AMERICA

Department of Physics
Colloquium

Dr. Rachel Bartek
The Catholic University of America

Pixel Detector Construction

The silicon pixel detector is the innermost component of the CMS tracking system, providing high precision measurements of charged particle trajectories. In 2016 the LHC already started to deliver more particles than the original CMS pixel detector could record causing it to see a dynamic inefficiency caused by data losses due to buffer overflows. For this reason the CMS Collaboration has built an upgraded pixel detector which was installed during an extended year end technical stop during winter 2016/2017. The Phase 1 Upgrade includes four barrel layers and three forward disks, providing robust tracking and vertexing for LHC particle rates expected through 2025. The upgrade incorporates new readout chips, front-end electronics, DC-DC powering, and dual-phase CO2 cooling to achieve performance exceeding that of the original detector with a lower material budget. This colloquium will review the module assembly of the Phase I detector modules. The challenges and difficulties encountered during the construction will also be presented, as well as the lessons learned for the next generation of pixel detector slated to be constructed at CUA.

Wednesday, November 8, 2017
4:00pm
108 Hannan Hall
Refreshments will be served at 3:45

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For more information or if you would like to request disability accommodations, please contact:
Patrick Burke **(202) 319-5315**