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Particle Physics Research within UMD's First-Year Innovation & Research Experience Program MUGE KARAGOZ, University of Maryland, College Park — The University of Maryland's First-Year Innovation & Research Experience (FIRE) is a 3-semester general education program with a first-semester enrollment of more than 600 undergraduates. FIRE provides students with faculty-mentored research experience and career-readiness with more than 15 diverse research streams available to its students in their second and third semesters. In 2019, I launched a new FIRE stream called "Simulating Particle Detection", to introduce undergraduate students to the field of experimental high energy particle physics. The research concentrates on computing and data analysis using simulations of novel detectors, specifically, the upgrade calorimeters of the CMS experiment at CERN. While high energy physics experiments are at the forefront of large collaborative research, large-size, university-wide course-based research experiences are not as common. There are many challenges to be addressed to serve about thirty undergraduates every year, such as adaptation of a high-level research topic into a course curriculum, physical and digital research setting logistics, and mentoring of students from different disciplines. I will share my experiences from the first-year running of my group, highlighting not only research but also pedagogical methods and outcomes concerning the above challenges.

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