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Materials for Active Engagement in Nuclear and Particle Physics Courses[1] JEFF LOATS, Metropolitan State University of Denver, CINDY SCHWARZ, Vassar College, KEN KRANE, Oregon State University — Physics education researchers have developed a rich variety of research-based instructional strategies that now permeate many introductory courses. Carrying these active-engagement techniques to upper-division courses requires effort and is bolstered by experience. Instructors interested in these methods thus face a large investment of time to start from scratch. This NSF-TUES grant, aims to develop, test and disseminate active-engagement materials for nuclear and particle physics topics. We will present examples of these materials, including: a) Conceptual discussion questions for use with Peer Instruction; b) warm-up questions for use with Just in Time Teaching, c) "Back of the Envelope" estimation questions and small-group case studies that will incorporate use of nuclear and particle databases, as well as d) conceptual exam questions.

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