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A Future for Undergraduate Physics Education?

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About two years ago, the Board on Physics and Astronomy of the National Research Council created a Committee on Undergraduate Physics Education (UPE), with support from the National Science Foundation. The Committee was given the task to identify "the goals and challenges facing undergraduate physics education," and "how best practices for undergraduate physics education can be implemented on a widespread and sustained basis." The Committee was also asked to "assess the status of physics education research (PER)" and to "discuss how PER can assist in accomplishing the goal of improving undergraduate physics education best practices and education policy." This presentation will report the Committee's findings and recommendations, the latter aimed at audiences ranging from individual physics faculty to departmental and university-wide leadership, and professional societies and funding agencies. The Committee's challenge was daunting. We are experiencing revolutionary changes in higher education, driven by new education technologies and demands for broader and deeper STEM education for more students in more fields. Only a relatively small fraction of undergraduates take physics courses. Nevertheless, half a million undergraduates enroll in at least one physics course in every academic year. PER has become a productive research field with the potential for major contributions to the improvement of undergraduate STEM education generally. Yet, in many—probably most–institutions UPE remains persistently traditional. We all have much to do!