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**Bridging the Knowledge-Practice Gap in Undergraduate Physics Education**

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The Physics Education Research (PER) community has shown that there are many aspects of teaching that can be systematically studied and improved using scientific methods. PER has also shown that a wide variety of instructors in a wide variety of institutions can consistently improve student learning by using research-based teaching practices. Like most fields, though, there is a substantial gap between the research-based knowledge that PER has developed about effective teaching and the actual practices of physics instructors. In this talk I will discuss this current state of research related to this grand challenge in Physics Education Research.