

Abstract Submitted  
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**ITOP: graduate courses for physics teachers**<sup>1</sup> ANDREW DUFFY, MANHER JARIWALA, Boston University, Physics Department, PETER GARIK, Boston University, School of Education — In this talk, we will describe Project ITOP, a set of 10 two-credit graduate courses for in-service physics teachers, offered through the College of Arts and Sciences at Boston University (BU). ITOP (Improving the Teaching of Physics) is based at BU, but we also teach the courses in Chicopee, MA, for teachers in western and central Massachusetts. The physics content in the courses ranges from Newton's laws of motion through to quantum mechanics, special relativity, and computer modeling. In addition, we discuss both the conceptual history of physics, as well as readings from the Physics Education Research literature. Our primary goal is to develop the pedagogical content knowledge of participating teachers, enabling teachers to be more effective in their own classrooms. ITOP web site: <http://physics.bu.edu/teachers/>

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