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Abstract for an Invited Paper
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Upper Level Physics MOOCs for Online and Blended Learning

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I will describe some of the experiments in offering MOOCs (Massive Open Online Courses) for upper level undergraduate and graduate physics courses at the physics department at MIT. As an example, I will discuss 8.05x: Mastering Quantum Mechanics, an online intermediate quantum mechanics course offered openly on the edX platform this Spring (2015). In addition to offering the MOOC, a selected group of MIT students is taking the course for credit, where contact hours are greatly reduced in favor of online activities. I will discuss the process of planning and creating 8.05x, the technologies used, and the differences between the MOOC and the MIT residential offering in terms of demographics, activity and performance. I will also extend the discussion to other past and planned upper level physics MOOCs where the MOOC is used to increase the flexibility of offerings of specialty courses, so students do not have to wait for the next time the course is offered and are able to take the course for credit either via a special offering or via self study.