Noah Finkelstein – Colloquium 4/19/2018

Title: Educational Transformation at a Critical Time: the promises of disciplinary engagement

Abstract: Significant, perhaps unprecedented, attention is being paid to the needs for transformation within the fields of science, technology, engineering, and mathematics (STEM) education at the undergraduate level. This talk examines how higher education STEM disciplines, and physics departments in particular, are positioned to contribute to these discussions. I will review the growth of our own program in physics education research (PER) at CU-Boulder as an example. Our work develops a new theoretical line of inquiry in physics education research through experimental work at the individual, the course, and the departmental scales. I present samples of these scales reviewing: how we can build on understanding of student reasoning to study and transform our introductory through upper division courses, studies of how our environments do and do not support women in physics, and models for engaging in sustainable and scalable transformation.

Time permitting, I will include examination of what the data say about teaching physics through a massively open online course and the role of new technologies in education.