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Abstract for an Invited Paper
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Rural outreach in Maine: A research-driven professional development teacher community¹

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In the Maine Physical Sciences Partnership (MainePSP), researchers at the University of Maine have joined together with the state's Department of Education, non-profits, and teachers in multiple school districts to create a dynamic and growing community dedicated to improving K12 education of the physical sciences. Through ongoing efforts to introduce and adapt instructional materials, guided by education research and research-guided professional development, we have built a community responsive to student and teacher needs. This work has fed back into the university setting, where teachers are playing a role in graduate courses taken by our Master of Science in Teaching students. In this talk, I will focus on the role of education research in the partnership, showing how we use research in professional development, the development of assessments, and the analysis of the resulting data. I will describe two projects, one to understand how teachers' content knowledge affects the development of items assessing knowledge of acceleration, the other to see how teachers use their content knowledge of systems and energy to make pedagogical choices based on students' incorrect ideas about conservation of energy.

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²This is for an invited talk in a session with Emina A Stojkovic and Gerceida Jones, organized by Geraldine Cochran.