

Benemérita Universidad Autónoma de Puebla
La Facultad de Ciencias Físico Matemáticas
Cuerpo Académico: Investigación Educativa

XII Taller Internacional

Nuevas Tendencias en la Enseñanza de la Física

la reunión de los que quieren que sus estudiantes mejoren su aprendizaje de
física

Mini-Course on Physics Education Research and Research- Based Innovations in Physics Instruction

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Part II: Developing Improved Curricula and Instructional Methods based on Physics Education Research

Saturday, May 29 (10:45 AM – 12:15 PM)

In many research-based curricula, physics students are guided to work their way through carefully designed and tested sequences of questions, exercises, and/or laboratory activities. Utilizing these materials, and interacting frequently during class with instructors and with each other, students have often achieved significant gains in understanding when compared with instruction based on lecture alone. In this presentation I will describe in some detail the process of developing these research-based curricula, as carried out by our group at Iowa State over the past several years. I will show how our research into students' reasoning in thermodynamics is helping guide the development of improved curricular materials. Similarly, investigations of the pedagogical role played by diverse representational modes (mathematical, verbal, diagrammatic, etc.) are also helping us lay the basis for developing more effective instructional methods.