4CF15-2015-000288

Abstract for an Invited Paper for the 4CF15 Meeting of the American Physical Society

Modeling Instruction: A Research-Based Guided-Inquiry Approach to Physics Teaching KELLI GAMEZ WARBLE, Arizona State University

Modeling Instruction began at Arizona State University in the physics department in the 1980s, and became one inspiration for subsequent Physics Education Research, including the well-known Force Concept Inventory. It is designed to correct many of the weaknesses of the traditional lecture-demonstration method of instruction, including the fragmentation of knowledge, student passivity, and the persistence of naive beliefs about the physical world. Modeling Instruction developed into the American Modeling Teachers Association, an organization of STEM teachers working to reform their classrooms to train students to think like scientists. However, Modeling Instruction is not commonly utilized at colleges and universities. A brief history of Modeling Instruction in Physics and its dissemination to high school and middle school physical science classrooms will be shared, as will ideas about how elements of Modeling might benefit post-secondary physics instruction.