

Eugenia Etkina (Rutgers University)

Title - Investigative Science Learning Environment (ISLE): helping students learn physics by practicing it and be empowered

Abstract - Investigative Science Learning Environment (ISLE) is an intentional pedagogical approach to teaching and learning physics that has two major goals: to engage students in the activities that mirror scientific practice while constructing and applying new knowledge and to help them grow as learners and empower them during that process. The former means that everything that happens in the classroom and at home related to students learning of physics mirrors the activities in which practicing scientists engage. The latter means that the decisions that the instructor makes while planning, enacting and assessing the instruction support student intellectual and emotional growth. In my talk I will discuss how the ISLE approach addresses these goals in practice and share the research findings collected in the studies of ISLE students and ISLE teachers.

Bio - Eugenia Etkina is a Distinguished Professor of Science Education at the Graduate School of Education at Rutgers, the State University Of New Jersey. She holds a PhD in physics education from Moscow State Pedagogical University and has over 35 years of experience teaching physics from middle school to university levels. She is a recipient of the 2014 Millikan Medal, awarded to educators who have made significant contributions to teaching physics by the American Association of Physics Teachers.

In 1988 she created a system in which students learn physics using processes that mirror scientific practice. The approach was enriched by her collaboration with A. Van Heuvelen in 2000 which led to the development of the Investigative Science Learning Environment (ISLE) approach, a unique approach that engages students in learning physics by practicing it from the first day of class.

Professor Etkina designed and leads one of the largest university-based physics teacher preparation programs in the United States (the foundation of the program is the ISLE approach) which graduated over 130 physics teachers over the last 15 years.