

## Session FC: Pre-college PER

**Location:** Salon Ballroom I/II  
**Sponsor:** Committee on Research in Physics Education  
**Co-Sponsor:** Committee on Physics in High Schools  
**Date:** Wednesday, July 17  
**Time:** 12:30–2:30 p.m.

*President: Dan Crowe*

### **FC01: 12:30-1 p.m. Teaching and Learning of Physics in Grades 5-8\***

*Invited – David E. Meltzer, Arizona State University, 7271 E. Sonoran Arroyo Mall, Mesa, AZ 85212; david.meltzer@asu.edu*

For the past five years I have taught regular weekly science classes to students in grades 5-8. This has allowed me to follow the development of many students over periods of years. I have used modified versions of various research-based college-level curricula, and have developed my own materials. Assessment materials included items from state-mandated tests, from standard instruments such as the CSEM, and from other sources. I will focus discussion on several themes: (1) there is great potential for significant physics learning at the middle-school level, but (2) the time and effort required to achieve such outcomes are enormous and perhaps underappreciated; at the same time (3) there are grounds for skepticism regarding the appropriateness of many common grade-level standards and expectations, and (4) assessment of learning by middle-school students must take into account a very substantial decay rate in student learning gains over time, a point emphasized by Piaget.

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