

Abstract Information

- **Title:** **Students' Reasoning Regarding Electric Field Concepts Pre- and Post-Instruction***
- Meeting:** 128th AAPT National Meeting: Miami Beach, FL
- Location:** Le Jardin
- Date:** Monday, Jan. 26
- Time:** 7:15 p.m.
- Author:** David E. Meltzer, Iowa State Univ.
515-294-9358, dem@iastate.edu
- Co-Author(s):** None
- Abstract:** In a previous report,¹ I presented an analysis of pre- and post-response data in an algebra-based general physics course regarding selected questions on the Conceptual Survey in Electricity (CSE). This analysis revealed certain regularities in students' responses on questions involving work, electric potential, field magnitude, and equipotential line spacing. Here I will discuss new data reflecting students' written explanations of their reasoning, provided both before and after instruction. These data allow more precise assessment of the changes in students' thinking. In particular, they show that although students largely abandon an initial tendency to associate stronger fields with wider equipotential line spacing, many of them persist in associating electric field magnitude at a point with the electric potential at that point (instead of the spatial derivative of the potential).²
- Footnotes:** *Supported in part by NSF grant #REC-0206683. 1. David E. Meltzer, "Dynamics of student concepts regarding electric field and potential," AAPT Announcer **31** (4), 127 (2001). 2. See <http://www.physics.iastate.edu/per/talks/contributed.html>.