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2005 Winter Meeting — Albuquerque, NM

January 8-12, 2005

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Date: Tuesday, Jan. 11

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CJ07: Development of Student Reasoning in an Upper-Level Thermal Physics Course*

□ **Location:** Taos
Date: Tuesday, Jan. 11
Time: 12:00 p.m.
Author: David Meltzer, Iowa State Univ.
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Abstract: We have been extending our investigation of student learning in thermal physics to the upper-level course targeted primarily at junior and senior physics majors. Through the use of a series of pretests, we are surveying students' knowledge on a variety of topics before instruction in order to gauge what they have learned from their introductory courses. We are then monitoring the progress of the students during the course, paying particular attention to students' reasoning as they attempt to unify the macroscopic and microscopic/statistical viewpoints into a coherent understanding of thermal physics concepts. We will report on initial results of this work, focusing particularly on the development of students' understanding regarding entropy and the second law of thermodynamics.

Footnotes: *Supported in part by NSF grants #DUE-9981140 and #PHY-0406724.

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