

## **BG02 1:45 p.m. Students' Reasoning Regarding Entropy and the Second Law of Thermodynamics\***

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As part of our continuing efforts to investigate student understanding of thermal physics in an introductory calculus-based course, we have probed students' ideas regarding entropy and the second law of thermodynamics. Most students enrolled in the class have had previous exposure to thermodynamics concepts in chemistry or high-school physics courses, and so many of them have specific ideas about these concepts even before instruction begins. We will report on data collected over the past two semesters reflecting the evolution of students' thinking throughout the course. The data include responses to questions administered both pre- and post-instruction, as well as student interviews and results of preliminary class testing of guided-inquiry worksheets. Initial results suggest that many key concepts remain highly resistant to instruction, although students seem to make progress in understanding certain thermodynamic relationships.

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