Session DG: PER: Student Content Understanding, Problem-Solving and Reasoning

Location: Plaza Ballroom I   **Sponsor:** AAPT   **Time:** 11 a.m.–12 p.m.   **Date:** Monday, Jan. 14   **Presider:** Alexandru Maries

DG02:   11:10-11:20 a.m.   Investigating Student Difficulties in Solving Basic Mathematics Problems*

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In order to study students' mathematical difficulties in introductory university physics courses, we have administered written diagnostics and conducted one-on-one problem-solving interviews. During the past three years, we have found that students in both algebra- and calculus-based courses have significant difficulties with solving basic high-school-level mathematics problems. These problems include basic trigonometry and algebra, and are posed in both numeric and symbolic form ("numeric" and "symbolic" refer to the nature of the constant coefficients). We will report our most recent findings on these items, but will focus on a new set of problems which include basic geometry, quadratic equations, and knowledge of trigonometry facts. Student work will be analyzed in detail to identify specific difficulties.

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