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**John Paul Cook**, jpcook@usao.edu, **Brian Katz\***, briankatz@augustana.edu, and **Milos Savic**, savic@math.ou.edu. *Developing Reinvention Materials in Ring Theory: Analysis of Students' Mathematical Activity*. Preliminary report.

In recent years, the method of guided reinvention supported the creation of innovative, research-based instructional materials for courses at the undergraduate level, including calculus, geometry, differential equations, linear algebra, and group theory. This project, consisting of a sequence of a small-scale and a full-classroom teaching experiment, seeks to extend one such instructional trajectory that promotes students' reinvention of definitions from introductory ring theory. In this talk, we will discuss results from the teaching experiments related to students' understanding of particular ring-theoretic concepts, and how we sought to leverage their reasoning through the creation of instructional tasks. (Received September 17, 2013)