962-S1-1352   **Bronislaw Czarnocha*** (`broni@mindspring.com`), 500 Grand Concourse, New York City, NY, **Vrunda Prabhu** (`vprabhu@williamwoods.edu`), One University Avenue, Fulton, MO 65251, and **Marlene Aquilar** (`maaguila@campus.ccm.itesm.mx`), Matematicas, Tecnico de Monterey, Campus Ciudad de Mexico Mexico, D.F, Mexico. *Introducing indivisibles into calculus instruction - preliminary results.* Preliminary report.

This talk will present the preliminary results of the teaching experiment whose goal has been to investigate whether the introduction of the technique of indivisibles into calculus, the interplay of the intuition of indivisibles with the standard Riemann intuition, and the instruction which integrates both, strengthen students' understanding of the concept of the definite integral. The teaching experiment being performed at two different locations, William Woods Unversity, Columbia Missouri and Tecnico de Monterey, Mexico D.F. with the students of 1st and 2nd semester calculus, is based on the discovery reported in the article to be published in the College Mathematics Journal. This article, by Czarnocha, Dubinsky, Loch, Prabhu and Vidakovic reports of a surprising intuition displayed by some students of calculus: in addition to the standard idea of approximating the area by the sum of rectangles, other students also saw the area as a sum of line segments from the abscissa to the curve. A historical study of the concept of the area under the curve reveals that the image held by the students corresponds in the general outline to the viewpoint presented by Archimedes in The Method, Cavalieri in the Geometria Indivisibilibus and John Wallis in Aritmetica Infinitorium. (Received October 03, 2000)

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