1068-28-304 **Jasun Gong*** (jasun@pitt.edu), 301 Thackeray Hall, University of Pittsburgh, Pittsburgh, PA 15260. *Structure theory of metric currents on Euclidean spaces.* Preliminary report.

The notion of a current dates back to de Rham (1955) and a ground-breaking structure theory was developed by Federer and Fleming in the 1960s. Roughly speaking, currents form a dual space to the class of compactly-supported differential forms on Euclidean spaces.

In recent years, Ambrosio and Kirchheim (2000) and Lang (2007) developed theories of currents that are well-defined in the setting of metric spaces. In this talk we discuss the structure theory of such "metric currents" in Euclidean spaces, address progress towards a few open problems, and if time permits, indicate the connections betweeen this theory and the structure of Lebesgue null sets in Euclidean spaces. (Received January 19, 2011)