1078-03-399 **Joseph S. Miller*** (jmiller@math.wisc.edu). *Cupping with random sets.*

Antonin Kučera asked if the K-trivial sets could be characterized as those that cannot be cupped above $\emptyset'$ with an incomplete Martin-Löf random. Furthermore, under the assumption that the non-K-trivial is Δ^0_2, he asked if the incomplete Martin-Löf random cupping partner could also be Δ^0_2. We answer both in the affirmative.

I will focus on the proof that if A is K-trivial, X is Martin-Löf random, and $A \oplus X$ computes $\emptyset'$, then X computes $\emptyset'$. This uses a recent result of Bienvenu, Hölzl, M. and Nies: a Martin-Löf random is complete iff it belongs to a Π^0_1 class in which its lower density is zero. Essentially, by factoring through this result and properties of K-trivials, we can show that X being complete *relative to* A is the same as X being complete.

The talk describes joint work with Adam Day. (Received December 13, 2011)