1041-55-27 **David I. Spivak*** (dspivak@uoregon.edu), University of Oregon. *Derived smooth manifolds.*

A derived manifold is a space together with a homotopical sheaf of C^∞-rings, which locally looks like the zero set of smooth functions on a smooth manifold.

To describe the category of smooth manifolds, I will give an axiomatization which is designed to allow one to understand their behavior without being immersed in the technical details. From these axioms, I will show that the cobordism theory of derived manifolds is equivalent to that of smooth manifolds, and that in particular, every derived manifold has a fundamental cobordism class. In particular, a cup product formula of the form

$$[A \cap B] = [A] \cup [B],$$

for compact derived submanifolds A and B, holds with full generality. That is, no transversality condition on A and B is required in order for their intersection to satisfy the displayed formula.

Using the remaining time, I will sketch how to construct the (simplicial) category of derived manifolds. (Received July 15, 2008)