1077-55-1371 **John A. Lind*** (jlind@math.jhu.edu). *Higher Geometry and Algebraic K-theory.*

A cohomology theory E is particularly useful when we can understand its cocycles $E^*(X)$ in terms of geometric objects associated to the space X. A basic example is the description of topological K-theory in terms of complex vector bundles. I will give an analogous interpretation of cocycles for $E = K(R)$, the algebraic K-theory of an associative ring spectrum R, in terms of bundles of R-modules over X.

The main technological development is the use of diagram spaces. Diagram spaces are a symmetric monoidal model for the category of spaces in which A_∞ spaces are strict monoids. This provides a theory of "principal G-bundles" when G is an A_∞ space. The delooping BG classifies principal G-bundles, and the description of $K(R)$-theory follows from the case of $G = GL_n(R)$. (Received September 19, 2011)