1046-55-177 **Weiwei Pan***, Wesleyan University, Department of Mathematics, Middletown, CT 06459.
Categorified Bundles and Classifying Spaces.

In the pursuit of geometrically defined cohomology theories, certain generalizations of the theory of vector bundles are studied. For a particular type of 2-category, Baas, Bökstedt and Kro define an associated concept of principal 2-bundles. They showed that the geometric nerve of a suitable 2-category is the classifying space of the associated principal 2-bundles. When the 2-category is actually a 2-group, Baez and Stevenson proved that principal 2-bundles are also classified by "non-abelian cohomology". We define a notion of equivariant 2-bundles, and discuss their classifying spaces as well as their relation to generalized representations of groups. (Received August 12, 2008)