1047-14-254   **Prabhu Venkataraman*** (`prabhu@eureka.edu`), 300 E College Ave, Eureka, IL 61530. *The 2-Lien of a 2-Gerbe.*

Principal bundles have a well-known description in terms of nonabelian cocycles of degree 1 with values in a sheaf. A more general notion than that of a sheaf on a space X is that of a lien on X. A lien on X is an object that is locally defined by a sheaf of groups, with descent data given up to inner conjugation. Equivalences classes of gerbes with a given lien L are classified by nonabelian degree 2 cocycles. In his work, Lawrence Breen has given a similar classification of 2-gerbes using nonabelian degree 3 cocycles that take values in a family of group stacks. We define the notion of a 2-lien on a space X. It is an object that is given locally by a group stack, with 2-descent given up to inner equivalence. We present some theorems about 2-liens of 2-gerbes which correspond to well known results about liens of gerbes. Also, Deligne has shown that any strict Picard stack $\mathcal{G}$ corresponds to a 2-term complex of abelian sheaves $K^{\cdot} = [K^0 \xrightarrow{d} K^1]$. In this case we prove that $\check{H}^3(X, \mathcal{G})$ is isomorphic to the hypercohomology group $\check{H}^3(X, K^{\cdot})$. (Received January 29, 2009)