

1116-46-700

Mira A. Peterka and **Albert Jeu-Liang Sheu*** (asheu@ku.edu), Department of Mathematics,
University of Kansas, Lawrence, KS 66045. *On Noncommutative Levi-Civita Connections.*

Following Jonathan Rosenberg's approach to Levi-Civita connections on noncommutative tori, we show that the Gauss-Bonnet theorem holds for two classes of non-conformal deformations of the flat metric on the noncommutative two-tori, including the case of non-commuting scalings along the principal directions of a two-torus. We also analyze how the curvature form and the uniqueness of torsion-free metric-compatible connection are affected when the connection operator for the inner $*$ -derivations is not limited to the prominent one considered by Rosenberg, and find a complete answer. (Received September 10, 2015)