1067-16-1258 **Mitja Mastnak*** (mmastnak@cs.smu.ca), Department Of Math. and C.S., Saint Mary's University, 923 Robie Street, Halifax, NS B3H3C3, Canada. *Cocycle deformations, calculus, and extensions.*

If H is a Hopf algebra over a ground field k, then a multiplicative cocycle on H is a unital linear map $\sigma\colon H \otimes H \to k$ satisfying the identity

$$(\varepsilon \otimes \sigma) * (\sigma(\mathrm{id} \otimes \mathrm{m})) = (\sigma \otimes \varepsilon) * (\sigma(\mathrm{m} \otimes \mathrm{id}))$$

in the convolution algebra $\mathrm{Hom}_k(H \otimes H \otimes H, k)$. If σ is such a map, then one can construct the cocycle twist H_σ of H by conjugating the multiplication m in H by σ, that is, $\mathrm{m}_\sigma = \sigma * \mathrm{m} * \sigma^{-1}$

I will describe various methods for computing multiplicative cocyles. These include exponential and q-exponential maps as well as cleft Hopf algebra extensions. Applications to the Andruskiewitsch-Schneider classification of pointed Hopf algebras will be considered. The talk is based on joint work with Luzius Grunenfelder. (Received September 20, 2010)