1046-81-270 **Susama Agarwala*** (`agarwala@math.jhu.edu`). *Differential Geometry on a Renormalization Bundle.*

Connes and Marcolli, arXiv:hep-th/0411114, capture the problem of renormalizing a scalar quantum field theory in terms of a connection on a complex bundle. I present an overview of that bundle, and apply it to a scalar quantum field theory for curved space-time, using ζ function regularization. This gives the result that the contributions of each Feynman graph to the β function is dependent only on the curvature of the background manifold. (Received August 25, 2008)