Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Perturbative approach to the RG β-function for the 3-d Anderson localization TOMOYUKI NAKAYAMA, KHANDKER MUTTALIB, University of Florida, PETER WÖLFLE, Karlsruhe Institute of Technology — The β-function of the conductance for Anderson Metal-Insulator transition in 2+ ε dimensions is known from the non-linear sigma model. However, the result is valid for small ε only. Recently, the β-function for the two-dimensional unitary case up to two-loop order was reproduced within a standard diagrammatic perturbation theory by including contributions from the ballistic regime in a consistent way [P. Ostrovskii (2009), unpublished]. An extension of the method to three dimensions will be discussed. The result in leading order in 1/g (g=dimensionless conductance) is β(g)=1-a/g, where a is a constant.

Tomoyuki Nakayama
University of Florida

Date submitted: 29 Dec 2009 Electronic form version 1.4