



The Abdus Salam
International Centre for Theoretical Physics



**Advanced Workshop on
"Anderson Localization, Nonlinearity and
Turbulence: A Cross-Fertilization"**

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TITLE:

"Multifractality of wave functions in disordered metals"

ABSTRACT:

It is shown how one comes to the multifractal statistics of wave functions in 2D weakly disordered metals. The calculation is based on using a traditional non-linear sigma-model. The multifractality follows from existence of a non-trivial extremum in this model. In the most interesting limit one comes to a Liouville theory resembling theories for quantum gravitation. A possibility to generalize the traditional sigma-model is discussed.