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Scientific Reports of the Prof. Ziad Musslimani for the Short Term Mobility Program

During my visit to the Institute of Complex Systems at the University of Sapienza, I have been working in collaboration with the group of Professor Claudio Conti on several scientific projects related to the general area of mathematical and physical modeling related to linear and nonlinear wave propagation in complex and random media.

Below, I list all the scientific activities we have discussed and accomplished during my stay at the Institute of Complex Systems at the University of Sapienza:

1. In collaboration with Professor Claudio Conti and his doctoral student Maria Chiara Braidotti, we submitted a manuscript for publication in Physica D.
2. In collaboration with Professor Claudio Conti and his Master student Giulia Marcucci, we discussed and formulated various research topics and directions related to the quantum dynamics of a periodically coupled normal and inverted harmonic oscillators. We envision to have preliminary results in the next coming weeks.
3. In collaboration with Professor Claudio Conti, we have discussed and formulated a new research direction related to wave propagation in disordered media particularly the phenomenon of Anderson localization in the presence of nonparaxial effects. The question we are particularly interested in is whether a finite spatial scale exists beyond which disorder strength would not have much effects on the spatial width of the wave function.

Sincerely,

Prof. Ziad Musslimani



Prof. Claudio Conti

