

Mathematics Faculty Search Computational Math

Candidate interview for
assistant professor

February 10, 2012



Songting Luo

Michigan State
www.math.psu.edu/tian/

Songting Luo is a postdoctoral fellow with the Department of Mathematics at Michigan State University. Luo received his PhD from the UC-Irvine in 2009.

His research interests include multiscale and multiphysics modeling and computation of nano optical responses; nanooptics; high frequency wave propagation; geometrical-optics and beyond; fast numerical methods for Hamilton-Jacobi equations with applications; and homogenization.

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TEACHING DEMO

401 Carver
Friday, February 10 at 4:00 p.m.

HOSPITALITY

404 Carver
Friday, February 10 at 1:45 p.m.

COLLOQUIUM

294 Carver
Friday, February 10 at 2:10 p.m.

Computational wave propagation at large scales

Luo will report two projects related to wave propagation.

One is the high frequency wave propagation at large scales, e.g., seismic wave propagation. A new efficient and accurate numerical method based on Geometrical Optics and Huygens Principle will be presented to construct the wave fields, which is verified by numerical examples.

The second is concerned with the scattering problems with the size of the scatter at nano scale.

Both the wavefield and the quantum mechanics of the scatter must be considered simultaneously to study the nano optical responses. A linear system to study the nano optical response by combining the semi-classical theory and Time-Dependent Density Functional Theory will be derived and solved with a multiscale scheme. Model calculations will be presented.