PhD opening in Engineering Mechanics

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I am seeking a highly motivated and talented research assistant with background in applied physics/mathematics, or mechanical/civil engineering.

Wave Mechanics Group at CU Boulder aim to tackle some of the challenging direct and inverse problems in engineering mechanics involving wave motion. Examples include:

- inverse scattering in complex or unknown domains
- linear/nonlinear wave propagation in materials with periodic, random, or multiphase microstructure e.g. metamaterials, damage/degradation zones, porous/granular media
- elastic-wave cloaking
- nonlinear and multi-scale dynamics of material interfaces

Some of the direct applications of our research are in the areas of

- oil/gas & energy involving real-time targeted monitoring of subsurface processes e.g. fracking aiming to enhance energy production from hydrocarbon/geothermal resources,
- next-generation NDE/SHM (Non-Destructive Evaluation/Structural Health Monitoring) including active sensing and characterization of damage precursors in highly heterogeneous materials e.g. composites, advanced materials.
- biomedical imaging entailing the nonlinear mechanics of soft tissue,
- critical infrastructure protection
- failure prediction via timely precursors of interfacial instability discovered through deciphering the complex mechanics of interfaces

Our research leverage advanced tools of mathematical analysis as well as leading-edge computational and experimental techniques, catered for by the state-of-the-art facilities at the CU Boulder. Thus, a strong foundation (or interest) in theoretical analysis, good coding skills, and experience (or Interest) in conducting experiments are remarkable assets.

Qualified candidates should hold a BS or MS degree in Mathematics, Mechanics, Physics, or Engineering with an average grade of 3.2/4 or higher, and (at least) an upper intermediate English level. All applicants should submit their GRE and TOEFL scores. While there are no specific restrictions on the GRE results, the mandatory TOEFL (internet-based) score is ≥80.

Applicants should submit their detailed CV to fatemeh.pourahmadian@colorado.edu. Applications are considered for both Fall 2017 and Spring 2018. This research position is funded and include a full tuition coverage, health insurance, and a monthly stipend of over $2,000.
The University of Colorado Boulder is one of the most comprehensive and prestigious public universities in the United States. In particular, its graduate program in Civil Engineering ranked 21 in 2016 according to the U.S. News & World Report. The main campus is located at the heart of the Boulder metropolitan area, nestled at the base of Colorado's Rocky Mountains, just 30 minutes northwest of Denver. Boulder is the nirvana of outdoor activities and is home to some of the world's top runners, cyclists, mountain bikers and rock climbers, because of world-class destinations such as Eldorado Canyon, Chautauqua, and Valmont Bike Parks. Also, thanks to many national laboratories and key tech/industrial companies based in Boulder (e.g. NIST, NOAA, NREL, Google), the city ranked 1st in the highest percentage of people with PhD degrees in the country.