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    z Prof. Kaushik Bhattacharya   Caltech

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    z The Third International Conference on Dynamics, Vibration and Control, 2010, Hangzhou

- Advances in Computational Tire Mechanics Minisymposium at ECCM IV, Paris

- 31st International Conference on Boundary Elements and Other Mesh Reduction Methods

- 17th International Conference on Composites or Nano Engineering　ICCE-17

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- International Journal of Applied Mechanics (IJAM) Vol.1 No.1-3

- Acta Mechanica Sinica Vol.25 (No.3) June, 2009

- Journal of Fluid Mechanics, Vol. 628, June 2009

- Journal of the Mechanics and Physics of Solids, updated

- International Journal for Numerical Methods in Engineering, Vol. 78, No. 13

- Journal of Computational Physics, June 6, 2009

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- Ph.D. Research Positions at Florida International University

- Postdoctoral Fellow Position -- Accepting Applications for Appointment Starting October 1, 2009

- Ph.D. Research Assistantship Position in Multi-Scale Computational Study of the Fracture of

Concrete at CU Boulder

- An opportunity for a PhD degree in Mechanical Engineering　topic: Computational Modelling of

Polymer Nanocomposites

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Prof. Kaushik Bhattacharya   Caltech

Education

Ph.D. 1991 University of Minnesota

B.Tech. 1986 Indian Institute of Technology, Madras

Professional Experience

2000-Current Professor, California Institute of Technology

1999 Associate Professor, California Institute of Technology

1993-99 Assistant Professor, California Institute of Technology

1991-93 Associate Research Scientist, Courant Institute of Mathematical Sciences

1986-91 Graduate Assistant, University of Minnesota

Visiting Positions

2006 Jet Propulsion Laboratories

2001 Indian Institute of Science, Bangalore

1999 Isaac Newton Institute, Cambridge University

1997-98 Max-Planck-Institute for Mathematics in the Sciences, Leipzig

1992 International Center for Mathematical Sciences, Edinburgh

1988 Mathematical Sciences Institute, Cornell University

Awards and Professional Recognition

Midwest Mechanics Lecturer, 2006-2007.

NASA Tech Brief Award, 2007

Special Achievement Award in Applied Mechanics, Applied Mechanics Division, American Societyof Mechanical

Engineering, 2004.

Society of Engineering Sciences Young Investigator Award, 2004.

2004 Best Paper Award in the area of active materials (with E. Burcsu and G. Ravichandran),

American Society of Mechanical Engineering, 2005.

Invited participant, Frontiers of Engineering, National Academy of Engineering, 2002; Japan -American Frontiers

of Engineering, National Academy of Engineering, 2003; German-American

Frontiers of Science, National Academy of Science, 1998.

Charles Lee Powell Award, California Institute of Technology, 1997

NSF Young Investigator, 1994

Professional and Administrative Activities

Editor, Journal of the Mechanics and Physics of Solids, from January 2004.

Executive Officer for Mechanical Engineering, California Institute of Technology, from October 2007.

Member, Board of Directors, Society of Engineering Sciences, from January 2005.

Member of the Editorial Board, Archive for Rational Mechanics and Analysis from 1999, Applied Mathematics

Research Express from 2003, Communications on Mathematical Sciences for Applications from 2001-2004.

Option Representative (Director of Graduate Studies) of Mechanical Engineering, California Institute of

Technology, 2003-2006.

Organizer (withWeinan E) of the fourth SIAM conference on the Mathematical Aspects of Materials Science, May

2004.

Organizer (with J.R. Willis and P. Suquet) of a four-month programme on the \Mathematical

developments in solid mechanics and materials science", Isaac Newton Institute, Cambridge, 1999.

Publications: Books and Book Chapters

[1] K. Bhattacharya. Microstructure of martensite. Why it forms and how it gives rise to the shape-memory e_ect, Oxford University Press, 2003.

[2] R. Abeyaratne, K. Bhattacharya, and J.K. Knowles. Strain-energy functions with local minima: Modeling phase transformations using _nite thermoelasticity. In Nonlinear elasticity: Theory and applications (ed. Y. Fu and R.W. Ogeden), Cambridge University Press, 433-490, 2001.

[3] K. Bhattacharya, J. Li and Y. Xiao. Electro-mechanical models for optimal design and e_ective behavior of electro-active polymers. In Electroactive polymer (EAP) actuators as arti_cial muscles. Reality, potential and challenges (ed. Y. Bar-Cohen), SPIE Press, 309-330, 2001.

[4] K. Bhattacharya. The microstructure of martensite and its implications on the shape-memory e_ect. In Microstructure and phase transition (ed. D. Kinderlehrer, R.D. James and M. Luskin) IMA volumes in mathematics and its applications, Springer Verlag, 1-25, 1993.

Research

The research activities of Kaushik Bhattacharya are at the intersection of Mechanics, Materials Science and Applied Mathematics. Concepts in Mechanics and recent methods of Mathematics are used to generate ideas for the design, development, and creation of new materials and the optimization of materials processing. Virtually every material contains features that are different at different length scales and undergoes processes at a variety of time scales. For example, even the simplest piece of metal is typically made up of many crystallites (grains), which in turn are made up of many atoms. This complexity is only compounded in sophisticated modern materials. Macroscopic applied loads and fields affect the microscopic structure; conversely, the microscopic structure affects the macroscopic behavior. Therefore, bridging length scales is a key theme, and this is addressed in a variety of materials and materials systems.

Much recent research has focused on active materials like shape-memory alloys and ferroelectrics. These materials are of inherent interest; furthermore, their characteristic microstructure makes them an ideal system to study development methodologies for multiscale modeling. The research has identified critical criteria in the crystallography that make shape-memory alloys special among martensites and Titanium-Nickel special among shape-memory alloys. Ideas for improvement of the shape-memory effect in other materials through texturing have been proposed. The research has also identified an electromechanical loading path gives rise to large

electrostriction in ferroelectric single crystal. A current focus of the research is the application of active materials in microactuation in MEMS application. A new strategy of using thin films of active materials that use inherent microstructural features as structural elements have been identified and demonstrated.

Other areas of research include the growth of thin films, the effective properties and failure of composite materials, the design of hard but tough steels, failure of heterogeneous materials, precipitation hardening, and the development of methods for a unified molecular-continuum description of materials.

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The Third International Conference on Dynamics, Vibration and Control, 2010, Hangzhou

Topics

1. Nonlinear Dynamics of Discrete and Continuous Systems

2. Mechanical Vibration and Control

3. Control Theory and Application

4. Dynamics and Control in Multi-body Systems

5. Analytical Dynamics

6. Dynamics in Engineering, Biology, Economy and Other Related Fields

Proceedings and Special Issues

The extended abstracts (3-4 A4 pages) will be published in the Conference Proceedings with CD-ROM. A number of selected full papers will be recommended to publish in the following international journals after the conference:

1 International Journal of Bifurcation and Chaos;

2 Journal of Sound and Vibration;

3 Science in China E, G;

4 International Journal of Non-Linear Mechanics.

Important Dates

May 31, 2009   Mini-symposium proposal submission
Sep. 30, 2009   Pre-registration, Extended abstract submission
Dec. 31, 2009   Notification of acceptance
Feb. 28, 2010   Revised extend abstract or full paper submission

Contact Information

Inquiries, suggestions and comments are welcome. Please send them to the secretary:

Ms. W.W. Huang

weiqiuzhu@zju.edu.cn

School of Aeronautics and Astronautics, Zhejiang University

Hangzhou 310027, China

Tel: (86-571) 87983102
For more information, please visit http://saa.zju.edu.cn/ICDVC2010/.

Advances in Computational Tire Mechanics Minisymposium at ECCM IV, Paris

201016-21 May 2010, http://www.eccm2010.org/

Tires have a long history of inspiring challenging applications of computational mechanics, and this field remains fertile for future advances. Because the tire is crucial to the safety of automotive systems, and because of its relevance to pavement and vehicle performance, there is much to be gained through investigation of the tire structure and how it interacts with its environment. The tire problem involves composite materials which show nonlinear time-, damage-, temperature- and load-dependent behaviour. It involves complex geometry, and contact conditions which demand innovative approaches for dealing with static, transient and steady state rolling. It involves the solution of multi-field, multi-scaled problems. More than ever, up to date computational approaches

are needed to address these issues realistically and efficiently.

This minisyposium is being organized in co-operation with The Tire Society, the leading community in the field of tire mechanics, in order to bring together scientists from academia and industry to discuss present and future developments.

Organized in Cooperation with The Tire Societywww.tiresociety.org

Organizers:

Michael Kaliske

Technische Universität Dresden, michael.kaliske@tu-dresden.de, Germany

Will Mars

Cooper Tire & Rubber Company, wvmars@coopertire.com , USA

Final Call for Papers - 28th Annual Conference & Meeting on Tire Science & Technology

September 15 & 16, 2009, Akron City Centre Hotel, Akron, Ohio, USA

Full details can be found here:www.tiresociety.org

Note that there is a $500 award for the best student-authored paper.

Authors are invited to submit abstracts of papers on topics related to tire materials, mechanics, processing, manufacturing, & applications. The papers are intended for presentation at this year's conference & publication in the society's journal. Conference technical sessions are now being planned based on submitted abstracts. The following are example topics:

• Tire Performance / Tire Mechanics

• Tire / Vehicle Dynamics

• Tire Design and Development

• Rolling Resistance / Traction / Tread Wear

• Tire Noise

• Tire Influences on Ride / Harshness

• Tire Performance on Non-Dry / Deformable Surfaces

• Techniques for Model and Laboratory Test Validation

• Tire Test Procedure Development and Application

• Tire Interaction with Electronic Stability Control

• Predictive Models

• Properties of Tire Materials

• Fracture and Adhesion in Tires

• Aging and Endurance of Tires

• Advances in Tire Manufacturing Processes

• Tire Requirements for Future Vehicles (e.g., fuel cell, hybrid)

• Applications of Intelligent Tire Technology

• Examples of Virtual Tire Development

31st International Conference on Boundary Elements and Other Mesh Reduction Methods

2 – 4 September 2009 New Forest, UK

ORGANISED BY:

Wessex Institute of Technology, UK

SPONSORED BY:

International Journal of Engineering Analysis with Boundary Elements (EABE)

The Conference on Mesh Reduction Methods and Boundary Elements (MRM/BEM), is recognised as the international forum for the latest advances of these methods and their applications in sciences and engineering.

The BEM/MRM Conference attracts a substantial number of well established and leading researchers in the field. The meetings have always had a special appeal to young researchers and are characterised by a friendly atmosphere in which delegates at different stages of their careers can interact with each other.

Engineers and scientists within the areas of numerical analysis, boundary elements and meshless methods will benefi t from attending the meeting.

CALL FOR PAPERS

Papers are invited on the topics outlined and others falling within the scope of the meeting. Abstracts of no more than 300 words should be submitted as soon as possible. We strongly encourage the submission of abstracts electronically.

Abstracts should clearly state the purpose, results and conclusions of the work to be described in the final paper.

Final acceptance will be based on the full-length paper, which if accepted for publication, must be presented at the conference. To be fair to all participants, each registered delegate will only be able to submit one paper.

The language of the conference will be English.

CONFERENCE TOPICS

1.Advanced Meshless and Mesh Reduction Methods

2.Heat and mass transfer

3.Electrical engineering and electromagnetics

4.Fluid flow

5.Advanced formulations

6.Computational techniques

7.Advanced structural applications

8.Dynamics and vibrations

9.Damage mechanics and fracture

10.Material characterisation

11.Financial Engineering Applications

12.Stochastic Modelling

13.Emerging Applications

ABSTRACT SUBMISSION

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Please submit your abstract with BEM/MRM 31 in the subject line. Include your name, full address and conference topics.

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Fax Submission

Fax: 44 (0) 238 029 2853

Fax one copy of your abstract with this completed Enquiry Form.

Mail Submission

Mail: Rachel Swinburn, Conference Manager, BEM/MRM 31, Wessex Institute of Technology,

Ashurst Lodge, Ashurst, Southampton, SO40 7AA, UK. Please mail a copy of your abstract with this completed Enquiry Form.

Telephone: 44 (0) 238 029 3223

17th International Conference on Composites or Nano Engineering   ICCE-17

July 26 - August 1, 2009 in Honolulu, Hawaii, USA

We have received overwhelming response of over 700 abstracts for this ICCE-17 Honolulu conference. The list of accepted paper titles can be found in web (wait a several days for computer to update the web), The conference web is, www.uno.edu/~engr/composite

We are still accepting NEW paper titles at ICCE-17 Honolulu, so please inform interested friends.

Interested authors should submit detailed two page abstract to David Hui, each page has two column format, and abstract must have as many results as possible. All abstracts will be reviewed and published as short papers in World Journal of Engineering. We allow only one paper per presenter. We prefer presenter as lead author.

Due to budgetary constraints, we are unable to reduce your registration fee. The registration fee is US$520 before June 26, 2009.

All these ICCE-17 detailed abstracts are peered reviewed and will appear as short papers in World Journal of Engineering (WJOE), upon payment of registration fee and attendance of ICCE-17. Further, "all" full length version of these short papers (with paper title change) will also be peered reviewed and published in WJOE. Thus, all participants will have two journal papers as a benefit of coming to ICCE-17 Hawaii.

David Hui, Ph.D., Doctor Honoris Causa

Chairman ICCE-17 Hawaii, USA

Professor of Mechanical Engineering Univ. of New Orleans

Editor-in-Chief, Composites B: Engineering

Tel: (504) 280 6192

dhui@uno.edu

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International Journal of Applied Mechanics   IJAM

Aims & Scope

The journal has as its objective the publication and wide electronic dissemination of innovative and consequential research in applied mechanics. It welcomes high-quality original research papers in all aspects of applied mechanics from contributors throughout the world. The journal aims to promote international exchange of new knowledge and recent development information in all aspects of applied mechanics. In addition to cover the classical branches of applied mechanics, namely solid mechanics, fluid mechanics, thermodynamics, and material science, the journal also encourages contributions from the newly emerging areas such as biomechanics, electromechanics, the mechanical behavior of advanced materials, nanomechanics, and many other inter-

disciplinary research areas in which the concepts of applied mechanics are extensively applied and developed.

More...

News

IJAM would like to congratulate Dr Zhao Qin, Dr Steven Cranford, Dr Theodor Ackbarow and Dr Markus J.

Buehler. Featured on the cover of Vol. 1 No. 1 of IJAM, is a figure from their paper "Robustness-Strength

Performance Of Hierarchical Alpha-Helical Protein Filaments", which appears in Vol. 1 No. 1 of IJAM. The figure

depicts the representation of structural protein hierarchies in the Hierarchical Bell Model.

International Journal of Applied Mechanics (IJAM) Vol.1 No.1

1. "Crack-like diffusion wedges and compressive stress evolution during thin film growth with inhomogeneous

grain boundary diffusivity", Tanmay K. Bhandakkar,

Eric Chason and Huajian Gao (Brown University). 1-20.

2. "Strained Ferroelectric Thin Films", Tong-Yi Zhang (Hong Kong University of Science and Technology). 21-40.

3. "Macro- and Microscopic Approaches to Plane Strain Deformation States of Face-Centered Cubic Metals under

Wedge Indentation", Yong Xue Gan (University of Toledo), Xi Chen (Columbia University). 41-60.

4. "Material Characterization Based on Instrumented and Simulated Indentation Tests", Zishun Liu (Institute Of

High Performance Computing), Edy Harsono and Somsak Swaddiwudhipong (National University Of Singapore).

61-84.

5. "Robustness-strength performance of hierarchical alpha-helical protein filaments", Zhao Qin, Steven Cranford,

Theodor Ackbarow and Markus J. Buehler (Massachusetts Institute of Technology). 85-112.

6. "Coarse grained modeling of biopolymers and proteins: methods and applications", Dechang Li (Tsinghua

University), Baohua Ji (Tsinghua University; Beijing Institute of Technology), KC Hwang (Tsinghua University),

Yonggang Huang (Northwest University). 113-136.

7. "Simulating The Fluid Dynamics Of Natural And Prosthetic Heart Valves Using The Immersed Boundary

Method", Boyce E. Griffith (New York University),

Xiaoyu Luo (University of Glasgow), David M. McQueen and Charles S. Peskin (New York University). 137-178.

8. "Fluid-structure interaction analysis of wall stress and flow patterns in a thoracic aortic aneurysm", Felicia Tan,

Ryo Torii, Alessandro Borghi,

Raad Mohiaddin, Nigel Wood, Xiao Yun Xu (Imperial College London). 179-200.

9. "Cyclic plasticity modelling for ANDES thin shell and line-spring finite elements", Espen Berg, Kjell Holthe, Bjorn Skallerud (Norwegian University of Science and Technology). 201-232.

10. "G space theory for numerical models for mechanics problems", Guirong Liu and Guiyong Zhang (National University of Singapore). 233-258.

International Journal of Applied Mechanics (IJAM) Vol.1 No.2

1. "Postbuckling Of Nano Rods/Tubes Based On Nonlocal Beam Theory", C. M. Wang (National University of Singapore); Y. Xiang (University of Western Sydney); S. Kitipornchai (City University of Hong Kong). 259-266.

2. "Ductile Fracture Characterization of Aluminum Alloy 2024-T351 Using Damage Plasticity Theory", Liang Xue and Tomasz Wierzbicki (Massachusetts Institute of Technology) .267-304.

3. "Lateral and Torsional Vibrations of A Two-Disk Rotor-Stator System with Axial Contact/Rubs", Kunpeng Zhang and Qian Ding (Tianjin University) 305-326.

4. "Phenomenological Modeling For Pore Opening, Closure And Rupture Of The Guv Membrane", Hui Fan and Yan Chen (Nanyang Technological University); K. Y. Sze (The University of Hong Kong). 327-338.

5. "Estimating Material Property and Failure of A Living Cell; Numerical Study", Mahmoud Chizari and Bin Wang (University of Aberdeen). 339-348.

6. "A New Efficient Approach for Modeling and Simulation of Nano-Switches under the Combined Effects of Intermolecular Surface Forces and Electrostatic Actuation", Mahdi Mojahedi, Hamid Moeenfard, Mohammad Taghi Ahmadian (Sharif University of Technology). 349-366.

7. "The Complex Variable Element-Free Galerkin (Cvefg) Method for Two-Dimensional Elasticity Problems", Miaojuan Peng, Pei Liu, Yumin Cheng (Shanghai University). 367-386.

8. "New Mechanics of Spinal Injury", Vladimir G. Ivancevic (Defense Science & Technology Organization of Australia). 387-401.

International Journal of Applied Mechanics (IJAM) Vol.1 No.3

1. "Foreword: Theoretical and Computational Nanomechanics", Pradeep Sharma (University of Houston), Rui Huang (University of Texas, Austin, USA).

2. "A Multi-scale Non-equilibrium Molecular Dynamics Algorithm and its Applications", Ni Sheng (Macau University of Science and Technology, China); Shaofan Li (University of California, Berkeley, USA).

3. "Simulations of collision cascades in Cu-Nb layered composites using an EAM interatomic potential", M. J. Demkowicz (Los Alamos National Laboratory,USA; Massachusetts Institute of Technology, USA); R. G.

Hoagland (Los Alamos National Laboratory,USA).

4. "Nonlinear mechanics of single-atomic-layer graphene sheets", Qiang Lu and Rui Huang (University of Texas, Austin, USA).

5. "Action-Derived Ab Initio Molecular Dynamics", S. Jun (University of Wyoming, USA); S. Pendurti (ASE Technologies Inc., Cincinnati,USA); I.H. Lee (Korea Research Institute of Standards and Science, Korea); S. Y. Kim and H. S. Park (University of Colorado, USA); Y.-H. Kim (National Renewable Energy Laboratory, Golden, USA).

6. "Ab-initio Study of Size and Strain Effects on the Electronic Properties of Si Nanowires", X. H. Peng (Arizona State University; Rensselaer Polytechnic Institute, USA); A. Alizadeh (General Electric Global Research Center, Niskayuna, USA); S. K. Kumar (Columbia University, USA); S. K. Nayak (Rensselaer Polytechnic Institute, USA).

7. "Equilibrium and metastable phase diagrams for island self-organization in selective area epitaxy" Noah D. Machtay and Robert V. Kukta (Stony Brook University, USA).

8. "An approximate formulation of the effective indentation modulus of elastically anisotropic film-on-substrate systems", T.L. Li and J.H. Lee (University of Tennessee); Y.F. Gao (University of Tennessee, Oak Ridge National Laboratory USA).

9. "Sawtooth Behavior of Natural Bio-macromolecules and Synthetic Polymers", Ying Wang and Youping Chen (University of Florida, USA).

10. "Structural phase transitions in a discrete one dimensional chain", Srikanth Vedantam and S. Mohanraj (National University of Singapore, Singapore).

Acta Mechanica Sinica Vol.25 (No. 3) June , 2009

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Reversal of the lift force on an oblate bubble in a weakly viscous linear shear flow

RICHARD ADOUA, DOMINIQUE LEGENDRE and JACQUES MAGNAUDET

Experimental and numerical study of miscible Faraday instability

F. ZOUESHTIAGH, S. AMIROUDINE and R. NARAYANAN

Linear instability analysis of low-pressure turbine flows

N. ABDESSEMED, S. J. SHERWIN and V. THEOFILIS

Turbulence and mixing in unsteady breaking surface waves

DAVID A. DRAZEN and W. KENDALL MELVILLE

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ZHONG WEI TIAN and ZI NIU WU

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WERNER KOCH

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Inside the moving layer of a sheared granular bed

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Analogy between velocity and scalar fields in a turbulent channel flow

ROBERT ANTHONY ANTONIA, HIROYUKI ABE and HIROSHI KAWAMURA

Centrifugal effects in rotating convection: nonlinear dynamics

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Lattice Boltzmann method with self-consistent thermo-hydrodynamic equilibria

M. SBRAGAGLIA, R. BENZI, L. BIFERALE, H. CHEN, X. SHAN and S. SUCCI

Large-scale amplitude modulation of the small-scale structures in turbulent boundary layers

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Effects of axisymmetric strain on a passive scalar field: modelling and experiment

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Combined effects of flow curvature and rotation on uniformly sheared turbulence

D. C. ROACH and A. G. L. HOLLOWAY

A mechanism of formation of multiple zonal jets in the oceans

P. BERLOFF, I. KAMENKOVICH and J. PEDLOSKY

A similarity solution for a dual moving boundary problem associated with a coastal-plain depositional system

JORGE LORENZO-TRUEBA, VAUGHAN R. VOLLER, TETSUJI MUTO, WONSUCK KIM, CHRIS PAOLA and JOHN B. SWENSON

Journal of the Mechanics and Physics of Solids

Sat Jun 6 06:41:33 BST 2009

1. Optical properties of two dimensional polymer photonic crystals after deformation induced pattern transformations

Publication year: 2009   D. Krishnan, H.T. Johnson

2. When and how do cracks propagate?

Publication year: 2009   Arthur Tomie, A. Chambolle, Kathryn L. Grimes, G.A. Francfort, Larissa A. Pohorecky ...

3. Numerical solution of polarization saturation/dielectric breakdown model in 2D finite piezoelectric media

Publication year: 2009   Atoosa Maleki, CuiYing Fan, Anna-Lena Kjøniksen, MingHao Zhao, Bo Nyström ...

4. Pair vs many-body potentials: influence on elastic and plastic behavior in nanoindentation of fcc metals

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7. Pair vs many-body potentials: influence on elastic and plastic behavior in nanoindentation of fcc metals

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4. An Interaction Potential Based Lattice Boltzmann Method with Adaptive Mesh Refinement (AMR) for Two-Phase Flow Simulation

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Ph.D. Research Positions at Florida International University

The NASA funded WaterSCAPES University Research Center at Florida International University has 4 Ph.D. positions available in two departments: (1) Department of Civil and Environmental Engineering (2 positions), and (2) the newly created Department of Earth and the Environment (2 positions). The focus of WaterSCAPES is to address the stocks and fluxes of water, nutrients and vegetative biomass through a quantitative approach that combines remote sensing observations (radar and optical), mathematical modeling of ecohydrologic processes and field ecophysiological experiments. The proposed work will be performed on two wetland ecosystems: the Everglades of South Florida and the Sian Ka'an Biosphere Reserve in the Yucatan peninsula of Mexico. Students with interest in hydrological modeling, remote sensing, and/or field based ecohydrological investigations are encouraged to apply. Full 12-month stipends and tuition are available with support up to 5 years. US Citizenship is required. Students interested in a degree in Civil and Environmental Engineering are should contact Dr. Fernando

Miralles-Wilhelm (Email: miralles@fiu.edu). Students interested in a Ph.D. degree in Geosciences should contact Dr. René Price (E-mail: pricer@fiu.edu). An online application and more information can be found at http://gradschool.fiu.edu/

Postdoctoral Fellow Position -- Accepting Applications for Appointment Starting October 1, 2009

A Postdoctoral Fellow position is available in the Computational Solid Mechanics Laboratory in the Division of Physical and Chemical Sciences and Engineering at King Abdullah University of Science and Technology (KAUST). Candidates with experience in one or more of the following research areas are encouraged to apply:

(1) Constitutive modeling of soft materials (biological tissues and polymers)

(2) Modeling of damage and fracture

(3) Modeling of metal forming and grinding in manufacturing processes

(4) Computational uncertainty quantification

(5) Large scale computing and software design

Qualifications

A successful candidate must have a Ph.D. in the field of computational solid mechanics with experience in one or more of the aforementioned areas of research. Programming experience on a UNIX platform is a must. Other related areas of research will be considered.

Appointment, salary and benefits

Appointment period: One year, renewable annually for a maximum appointment of three years.

Salary: $50,000 (for recent Ph.D.) to $90,000 (for Ph.D. with four or more years of research experience). No tax paid to the Kingdom of Saudi Arabia.

Other benefits: Free housing, medical, dental, air transportation to KAUST, one round-trip airline ticket per year to visit home country for postdoctoral fellow & his/her spouse & children.

Contacts, application material and deadlines

Interested applicants should send a detailed C.V. with at least three professional references to Professor Tamer El Sayed at tamer.elsayed@kaust.edu.sa

The position will remain open until filled.

About KAUST (http://www.kaust.edu.sa/)

King Abdullah University of Science and Technology (KAUST) is an international, graduate-level research university located on the Red Sea in the Kingdom of Saudi Arabia. Dedicated to inspiring a new age of scientific achievement that will benefit the region and the world, KAUST will exemplify the future of world-class research. It is the vibrant home to an international community of students, faculty and staff, researchers, and families, situated in a unique Red Sea coastal location near Thuwal, 80 kilometers (50 miles) north of Jeddah – Saudi Arabia's second largest city. The total area of the self-contained community spans more than 36 million square meters, including a unique coral reef ecosystem that the University will preserve as a marine sanctuary. At opening, KAUST will house the Shaheen Supercomputer, a 16-rack IBM Blue Gene/P System, equipped with 4 gigabytes of memory per node and capable of 222 teraflops — or 222 trillion floating-point-operations — per second, making KAUST's campus in Thuwal the site of one of the world's fastest supercomputers. KAUST will also be connected directly into the worldwide research networks, running 10 Gbps directly to networks such as Internet2 & GEANT2. The infrastructure is designed with future IT requirements and developments in mind, including installation of 100,000 Ethernet ports and 500 kilometers of cables, with abundant dark fiber ready to be activated when needed. More details are available at http://www.kaust.edu.sa/

Ph.D. Research Assistantship Position in Multi-Scale Computational Study of the Fracture of Concrete at CU Boulder

A Ph.D. Research Assistantship position in multi-scale computational mechanics of fracture of composites (with application on concrete) will be available to start in January 2010 in the Department of Civil Engineering, at the University of Colorado at Boulder, Colorado, USA.

The Ph.D. student will join a team whose research is centered on developing mathematical models and computational techniques for multi-physics/multi-scale problems in solid mechanics. Topics of the project include nonlinear material behavior, mechanics of porous media, plasticity, damage and fracture as well as numerical schemes such as extended finite element method, level-set method and concurrent multi-scale techniques. The student's area of research will be on the development of numerical methods to couple the behavior of concrete microstructure at small length-scales to its macroscopic response and fracture. Applicants for the Ph.D. research assistantship position should have a Master's degree in Mechanical, Civil Engineering, Applied Mathematics or a similar discipline, with strong credentials. Background in solid mechanics, finite element programming and knowledge of computing languages such as Fortran or C++ will be also considered during the selection process. The Research Assistantship covers tuition and fees, medical insurance and a monthly stipend.

To apply: Interested students must contact and subsequently submit their resumes, along with transcripts and statement of purpose, to Prof. Franck Vernerey (email: franck.vernerey@colorado.edu), and apply for admission to University of Colorado at Boulder Graduate School

(http://www.colorado.edu/prospective/graduate/apply/process.html). For doing that, the student must comply with the graduate school requirements for Ph.D. in Engineering and Applied Science.

An opportunity for a PhD degree in Mechanical Engineering (topic: Computational Modelling of Polymer Nanocomposites)

There exists an opportunity for a prospective PhD student wishing to pursue her/his research degree in Mechanical Engineering (subject: Computational Modelling of Polymer Nanocomposites) at the Department of Mechanical and Aeronautical Engineering and the Materials and Surface Science Institute (www.ul.ie/mssi) of the University of Limerick (www.ul.ie). A student (with or without a Master Degree) can apply for a post-graduate scholarship (~EUR1300/month + college fees) to the Irish Research Council for Science, Engineering and Technology (www. ircset.ie).

Department of Mechanical and Aeronautical Engineering

University of Limerick

Ireland

For more information please see: http://www.ircset.ie/Portals/0/EMBARK_Guidelines%20for%20applicants.pdf

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