第三届非线性力学最新进展国际会议通知

Third International Conference on Recent Advances in Nonlinear Mechanics (RANM2014)

6-9 January 2014, Harbin, China

About RANM 2014

The conference series Recent Advances in Nonlinear Mechanics (RANM) gathers leading researchers from three major areas of mechanics, namely, dynamics, fluids and materials. Papers from both fundamental and applied problems, where nonlinearities or nonlinear interactions play major roles, are very welcome.

The series has been founded by Prof M Wiercigroch of the University of Aberdeen, where the first conference (RANM2005) was held in 2005. The second RANM event (RANM2009) was organized by Dr KC Woo of the University of Nottingham Malaysia Campus, four years later in Kuala Lumpur, where it was decided that 3rd RANM will be hosted by HIT in Haerbin.

Keynote Speakers

Haiyan Hu, Beijing Institute of Technology, China

Tomasz Kapitaniak, Technical University of Lodz, Poland

Stefano Lenci, Polytechnic University of Marche, Italy

Caishan Liu, Peking University, China

Qishao Lu, Beihang University, China

Lifeng Ma, Xi'an Jiaotong Universtiy, China

Paul Manneville, École Polytechnique, France

Robert McMeeking, University of California Santa Barbara, USA

Marian Wiercigroch, University of Aberdeen, UK

Zaihua Wang, Nanjing University of Aeronautics and Astronautics, China

Ko-Choong Woo, University of Nottingham, Malaysia

Linzhi Wu, Harbin Institute of Technology, China

Technical Program

Date: 6 January 2014 Place: Room 327, Student Union, HIT

Chair: **Marian Wiercigroch**, University of Aberbeen

08:30 – 09:00 Opening Ceremony

09:00 – 09:20 Picture Taken

09:20 – 10:00 Opening Lecture: **Robert McMeeking**, University of California Santa Barbara,

The generation of stress in the storage particles of Lithium-Ion batteries

Pearl Session

Chair: **Tomasz Kapitaniak**, Technical University of Lodz

10:20 – 10:50 Keynote Lecture: **Linzhi Wu**, Harbin Institute of Technology,

Fracture mechanics of composite materials with complex interfaces

10:50 – 11:10 Contributing Lecture: **Zhike Peng**, Shanghai Jiaotong University,

Modeling for a class of nonlinear DPS based on wavelet basis expansion through multilevel excitations

11:10 – 11:30 Contributing Lecture: **Wenyang Duan**, Harbin Engineering University,

Development of GN wave theory

11:30 – 11:50 Contributing Lecture: **Ziqiang Lang**, University of Sheffield,

Transmissibility analysis for damage detection and location using nonlinear features of structural system responses

11:50 – 12:10 Contributing Lecture: **Huasheng Wang,** Queen Mary University,

Finite element modelling of atomic force microscope cantilevers with uncertainty in material and dimensional parameters.

Chair: **Paul Manneville**, École Polytechnique

Paul Manneville, École Polytechnique

New experiments on transitional plane couette flow

Tingwei Liang, Harbin Institute of Technology,

The stability analysis on dynamic balance testing for helicopter rotor blade

Zhonggang Li, Harbin Institute of Technology,

The global bifurcation of the gas exciting force in therotor-seal system

Baoling Zhang, Shijiazhuang Tiedao University,

Study on the bifurcation and chaos of impact oscillator subjected to external periodic excitation ang

impluse excitation

Huatao Chen, Harbin Institute of Technology,

The existence of random attractor and its Hausdorff dimension for a nonlinear beam driven by

multiplicative white noises

Ning Han, Harbin Institute of Technology,

A rotating pendulum coupled with SD oscillator

Yanwei Han, Harbin Institute of Technology,

Non-smooth bifurcation and chaotic motion based upon the SD oscillator

Zhifeng Hao, Harbin Institute of Technology,

Dynamics and bifurcations of a nonlinear oscillator with stable quasi-zero-stiffness

Zhixin Li, Harbin Institute of Technology,

Equilibrium bifurcation of the SD oscillator with dry friction

Lei Hou, Harbin Institute of Technology,

Effection on the cracked rotor under maneuver load

Dongwei Wang, Harbin Institute of Technology,

Vibration isolation and nonlinear dynamical analysis for a precision payload installed with a stewart platform

Yuqian Xu, Harbin Institute of Technology,

Structural modeling and nonlinear aero-elastic problems of high-aspect ratio wings

Dan Wang, Harbin Institute of Technology,

Resonance analysis of a two dimensional turbomachine blade with the coupling of bending and torsion

Kuan Lu, Harbin Institute of Technology,

Dimension reduction of nonlinear transient POD method for a rotor system with bearing loose

Zhenyong Lu, Harbin Institute of Technology,

Nonlinear dynamics of a hollow shaft rotor system with an open crack

Amazon Session

Chair: **Qishao Lu**, Beihang University

14:00 – 14:40 Keynote Lecure: **Haiyan Hu**, Beijing Institute of Technology,

Dynamic modeling and simulation of large deployable space structures

14:40 – 15:00 Contributing Lecture: **Ling Hong**, Xi'an Jiaotong University,

Double crisis in forced pendulum

15:00 – 15:20 Contributing Lecture: **Yingjie Wei**, Harbin Institute of Technology,

Research and development of supercavitation

15:20 – 15:40 Contributing Lecture: **Qi Dong**, China Academy of Engineering Physics,

Dynamic unstable vibration in rings and shells caused by nonlinear modal coupling

15:40 – 16:00 Contributing Lecture: **Yan Ru**, Xi'an University of Technology,

Surface effect on the diffraction of horizontal shear waves near a nanosized cylindrical hole in half-plane

Yangtze Session

Chair: **Zhiqiang Lang**, University of Sheffield

16:20 – 16:50 Keynote Lecture: **Paul Manneville**, École Polytechnique,

Dynamical systems and the direct transition to turbulence in subcritical flows

16:50 – 17:10 Contributing Lecture: **Jun Jiang**, Xi'an Jiaotong University,

Nonlinear normal modes with a constraint condition in a rotor-to-stator rubbing system

17:10 – 17:30 Contributing Lecture: **Cuiping Kuang**, Tongji University,

Numerical study on hydrodynamic response to groin structure of beach nourishment project in Haitan Bay, China

17:30 – 17:50 Contributing Lecture: **Chee-Wah Lim**, City University of Hong Kong,

On nonlocal strain gradient theory of elasticity

17:50 – 18:10 Contributing Lecture: **Tiantian Xu**, State University of New York,

An efficient reduced-order model for the nonlinear dynamics of carbon nanotubes

18:30 Welcome Banquet; Place: Xiyuan Restaurant, HIT

Date: 7 January 2014 Place: Conference Hall No. 1, Friendship Palace Hotel

Mississippi Session

Chair: **Stefano Lenci**, Polytechnic University of Marche

08:00 – 08:30 Keynote Lecure: **Ko-Choong Woo**, The University of Nottingham,

Nonlinear dynamic interactions of electro-vibroimpact system

08:30 – 08:50 Contributing Lecture: **Andrzej Tylikowski**, Warsaw University of Technology,

Stability of nonlinear vibration for a carbon nanotube conveying viscous fluid

08:50 – 09:10 Contributing Lecture: **Xinwei Yang**, Shijiazhuang institute of railway technology,

Study on the application of SD oscillator in vibration absorption of beam bridge based on power flow theory

09:10 – 09:30 Contributing Lecture: **Jie Xu**, Xi'an Jiaotong University,

Photothermal elastic vibration response of gold coating semiconducting microcantilevers

09:30 – 09:50 Contributing Lecture: **Lin Zhu**, Xi'an University of Technology,

Stress triaxiality in the neck region of the circumferentially notched tension bars

Yellow River Session

Chair: **Ling Hong**, Xi'an Jiaotong University

10:10 – 10:40 Keynote Lecture: **Stefano Lenci**, Polytechnic University of Marche,

Micro-electro- mechanical- systems (MEMS): A dynamical integrity perspective

10:40 – 11:00 Contributing Lecture: **Sergey Kryzhevich**, Saint-Petersburg State University,

Motion of a rough disc in newtonian aerodynamics

11:00 – 11:20 Contributing Lecture: **Zhihui Li**, Xi'an University of Technology,

New fracture criterion for prediction of fracture initiation of metals at various stress triaxialities

11:20 – 11:40 Contributing Lecture: **Marcin Kapitaniak,** University of Aberbeen,

Dynamics of drill-strings: a Finite Element approach

11:40 – 12:00 Contributing Lecture: **Tianbao Dong**, Xi'an jiaotong University,

Photothermal elastic vibration of microcantilevers in fluids.

Rhein Session

Chair: **Jun Jiang**, Xi'an Jiaotong University

14:00 – 14:30 Keynote Lecure: **Caishan Liu**, Peking University,

Theoretical and experimental studies for the motion of a prism rolling on a ramp

14:30 – 14:50 Contributing Lecture: **Andrzej Stefanski**, Technical University of Lodz,

Synchronization of slowly rotating nonidentically driven pendula

14:50 – 15:10 Contributing Lecture: **Qing Zhang**, Xi'an University of Technology,

Comparison of three different analytical solutions of Love waves propagating in functionally graded layered structure

15:10 – 15:30 Contributing Lecture: **Yan Wang**, Xi'an University of Technology,

Dynamic stability of a moving plate with point supports using element free galerkin method

15:30 – 15:50 Contributing Lecture: **Xingguang Zhou**, ETS, Solutions (Beijing) Ltd,

The applications of the multiple shaft system in mechanics experiment

15:50 – 16:10 Contributing Lecture: **Jun Lin**, Donghua Test,

Introduction and the applications of the Donghua test technique

16:10 – 16:30 Contributing Lecture: **Yugang Zhao**, Econ Technologies Co., Ltd,

MIMO vibration testing control, latest control technique from econ.

Date: 8 January 2014 Place: Conference Hall No. 1, Friendship Palace Hotel

Donau Session

Chair: **Chee-Wah Lim**, City University of Hong Kong

08:00 – 08:30 Keynote Lecture: **Lifeng Ma**, Xi'an Jiaotong Universtiy,

The principle of material exchange for inhomogeneous inclusions

08:30 – 08:50 Contributing Lecture: **Zaihua Wang**, Nanjing University of Aeronautics and Astronautics,

A new design formula of delayed optimal tracking control for linear systems with an input delay

08:50 – 09:10 Contributing Lecture: **Yun Zeng**, Kunming University of Science and Technology,

Matrix elements of generalized Hamiltonian system influence on output dynamic

09:10 – 09:30 Contributing Lecture: **Daolin Ma**, Peking University,

A modified elastic-plasticity constitutive model for collision of spheres and the relation between coefficient of energy restitution and impact speed

09:30 – 09:50 Contributing Lecture: **Yang Yang**, Shanghai Jiao Tong University,

Identification of nonlinear mdof systems using parameterized time-frequency analysis

Volga Session

Chair: **Zaihua Wang**, Nanjing University of Aeronautics and Astronautics

10:10 – 10:40 Keynote Lecture: **Marian Wiercigroch**, University of Aberbeen,

Grazing induced bifurcations in impact oscillators

10:40 – 11:00 Contributing Lecture: **Jiazhong Zhang**, Xi'an Jiaotong University,

Complex transitional phenomena in aerodynamics and their bifurcation analysis

11:00 – 11:20 Contributing Lecture: **Jing Qian**, Kunming University of Science and Technology,

Hydroelectric generating set controller parameters influence on stability of unit operation

11:20 – 11:40 Contributing Lecture: **Si-Chung Jong**, The University of Nottingham,

Electro- vibroimpact machine

11:40 – 12:00 Contributing Lecture: **Jiao Wang**, Peking University,

A routine from periodic motions to chaos in a bouncing dimer

12:00 – 12:20 Contributing Lecture: **Sze-Hong Teh**, The University of Nottingham,

Rotating a pendulum with an electromechanical excitation

Mekong Session

Chair: **Zhike Peng**, Shanghai Jiaotong University

14:00 – 14:30 Keynote Lecture: **Qishao Lu**, Beihang University,

Some new bifurcations induced by the discontinuity in Chua's lucircuit

14:30 – 14:50 Contributing Lecture: **Yang Liu**, Robert Gordon University,

Analysis and control of a vibro-impact capsule system

14:50 – 15:10 Contributing Lecture: **Sami Davtalab**, The University of Nottingham Malaysia Campus,

Nonlinear vibrations of an experimental bridge

15:10 – 15:30 Contributing Lecture: **Wenting Kang**, Peking University,

An experimental and theoretical study about penetrating dynamics of granular matter

15:30 – 15:50 Contributing Lecture: **Qingjie Cao**, Harbin Institute of Technology,

Codimension-three bifurcations phenomena and the multiple bucklings of a novel nonlinear oscillator

Thames Session

Chair: **Qingjie Cao**, Harbin Institute of Technology

16:10 – 16:50 Closing Lecture: **Tomasz Kapitaniak**, Technical University of Lodz,

Synchronization configurations of two coupled double pendula

16:50 – 17:10 Closing Ceremony

18:30 Conference Dinner