ENOC 2014

8th European Nonlinear Dynamics Conference

July 6 - 11, 2014
Vienna, Austria

Conference Chairs: H. Ecker
                       A. Steindl
                       S. Jakubek

TECHNISCHE
UNIVERSITÄT
WIEN

TU WIEN
Vienna University of Technology

ENOC2014

8th European Nonlinear Dynamics Conference

July 6-11, 2014, Vienna, Austria

Welcome to ENOC 2014!

July 6-11, 2014, Vienna, Austria

ENOC conferences have a long history. Since 1992, the European Mechanics Society (EUROMECH) organizes European Nonlinear Oscillations Conferences (ENOCs) by the European Nonlinear Oscillations Conference Committee (ENOCC). But, ENOC conferences have an even longer tradition, since they are successors of the former ICNO (International Conference on Nonlinear Oscillations) series held from 1961 to 1990 in Eastern Europe. Starting from the 1st International Conference on Nonlinear Oscillations held in Kiev in 1961, twelve ICNOs were organized until 1990. Then, beginning with the 1st European Nonlinear Oscillations Conference in 1992, seven ENOCs were organized in Hamburg, Prague, Copenhagen, Moscow, Eindhoven, St. Petersburg and Rome until today.

Both the ICNO and ENOC series of conferences intend to be a meeting place for nonlinear dynamics scientists from all over the world, where in particular "East meets West".

Presently, ENOCs are the largest high-quality scientific events in the broad area of nonlinear dynamics not only in Europe but worldwide. They aim at covering the complete field of Nonlinear Dynamics, including Multibody Dynamics and coupling to Stability, Identification, Control and (Structural) Optimization.

Indeed, parallel important events organized by other Societies often cover partial aspects of the whole scientific area, for being either more theoretically or more engineering oriented. In contrast, ENOC encompasses many diverse topics ranging from dynamical systems theory to different engineering applications, and attracts scholars from theoretical and applied mechanics as well as from applied mathematics and physics, within an actually cross-disciplinary framework.

The Institute of Mechanics and Mechatronics at TU Vienna welcomes more than 400 participants from all continents and wishes them a pleasant stay in Vienna.

The conference chairs of ENOC 2014 are very much obliged to the ENOC Committee and especially its Chairman Prof. Giuseppe Rega for his continuous support and encouragement during the preparation of this conference.

The success of the conference would not have been possible without the help and dedicated work of more than 50 colleagues around the world, who acted as Mini-Symposium-Organizers and who took over the announcement and promotion of the conference, the peer-review of more than 500 paper proposals, and a number of other tasks. The list of Mini-Symposia organized at this ENOC and the responsible chair persons are gratefully acknowledged on the next pages.

Moreover, the conference chairs would like to thank the secretaries of the Institute of Mechanics and Mechatronics, Renate Mühlberger in the first place, but also Birgit Pimperl, Ruth Polterauer, and Verena Rothbauer for their hard work and the many extra hours devoted to the conference.

Special thanks go to Georg Canek for the design of the website and the preparation of the USB-sticks, to Nicole Nagele-Wild for installing and the maintenance of our paper submission system (ConfTool®), and, last but not least, to Manfred Neumann, who contributed with his many talents in numerous ways to the success of the conference.

Vienna, July 2014

H. Ecker
A. Steindl
S. Jakubek

General Information

Besides the detailed conference schedule, a list of presentations and a list of presenters, this booklet contains also general information. Please note the floor plans on the following pages to help you find your way in the conference building.

Conference office
The conference office is located on the 2nd floor (2.OG) in the green area. It will be open during the conference from 8:30h to 16:00h.

Hosting institution
The conference is organized by the Institute of Mechanics and Mechatronics, Vienna University of Technology, Wiedner Hauptstraße 8-10, A-1040 Vienna, Austria. Phone: +43-1-58801-32503.
Website: http://enoc2014.conf.tuwien.ac.at

Registration and fees
On-site registration is possible during the conference (600,- EUR) and includes the Book of Abstracts, the USB-Proceedings, participation in the social program, as well as morning and afternoon refreshments and lunch. Additional tickets for accompanying persons (200,- EUR) may also be purchased at the conference office.

Awards and prizes
The ENOC Young Scientist Award is granted to two outstanding young participants. The presentations of students that are registered for this competition are attended and observed by members of the ENOC-Committee. The committee will then decide on the winners.

Also, the ENOC Best Poster Paper Award is granted to two selected poster presentations. All conference participants are invited to take part in the selection. Note the ballot paper with further information in your bag! Winners of prizes are awarded and honored during the Closing Ceremony on Friday.

Information for authors and session chairs
Laptop computers with recent versions of Windows, MS-Powerpoint® and Adobe Acrobat® are provided in the lecture rooms. Presenters are kindly asked to hand over their presentation files on a USB-stick to our staff in the lecture room or at the author's corner, as soon as possible during one of the breaks. Laptop computers to try out presentations with the equipment provided are available at the author's corner.

Authors may use their own computers. However, it is highly recommended to test compatibility with the data projector in the respective lecture room to make sure that a quick and smooth change will take place and that presentations can be started without delays.

Presenters of regular presentations are kindly requested to strictly observe the time limit of 15 minutes for presentations, and allow 5 minutes for Q&A and change of speakers.

Presenting authors are kindly requested to fill out the biography form and return it to the conference office as soon as possible.

Session chairs are asked to pick up updated information on their session at the conference office at least 30 min before sessions start. In the case of "no-shows", the time schedule should not be changed, to allow the participants to switch between sessions as planned.

Conference proceedings
Authors had to provide either a 2-page extended abstract or a 6-page full paper. The papers (pdf-format) of the 400+ regular and poster presentations, of the 5 keynote presentations and of 4 extended presentations are contained on the USB-stick, and are distributed to the participants.

After the conference, digital proceedings on a CD (ISBN: 978-3-200-03433-4) will be produced based on the USB-stick content, but will contain only the actually presented contributions.

Internet access

Free Internet access is available to participants via WLAN within most areas of the conference building. eduroam -users will have immediate access to the Internet, since TU-Vienna is participating in this project. Accessing the Internet via the local network tunet (SSID) and DHCP is also possible. A folder with user name, password and configuration settings is provided at the conference office.

Lunch, coffee breaks and refreshments

Lunch is offered in the MENSA from Monday to Thursday on the first floor (1.OG). Participants are requested to show their conference badge to be served. Two different kinds of meals (regular and vegetarian) are offered. During the morning and afternoon breaks, coffee, tea and some sweet snacks are served. Also a fridge with bottles of water is available exclusively for ENOC participants. Please help yourself!

To meet and chat with colleagues, tables and chairs are available on the second floor. Also the "Meeting Lounge" (1.OG, red) is open for participants during the days of ENOC 2104.

Social events and program

The social program comprises the Welcome Reception in the conference building on Sunday evening, the half-day excursion to Schönbrunn on Wednesday afternoon and the conference banquet on Thursday evening. Participants who are registered as students with the benefit of a significantly reduced fee, are, unfortunately, not admitted to the half-day excursion and the conference banquet.

Accompanying Persons Program

Persons registered for the Accompanying Persons Program (APP) are admitted to the social program of fully registered participants. Moreover, there are two sightseeing tours planned for accompanying persons. The first one will take place on Tuesday afternoon, the second one on Thursday morning. Participants will meet in the "Meeting Lounge" on the first floor (1.OG, red). More information is provided on a folder handed out upon check-in.

Accompanying persons are kindly requested to wear the ENOC conference badges when participating in conference activities.

EUROMECH Nonlinear Oscillations Conference Committee

G. Rega, Italy (Chair)
V. Acary, France
M. Cartmell, Scotland
F. Chernousko, Russia
P. Eberhard, Germany
O. Gottlieb, Israel
C. Lamarque, France
R.I. Leine, Switzerland
P.L. Ribeiro, Portugal
G. Stepan, Hungary
D.H. van Campen, The Netherlands (retired Chair)

Local Organizing Committee

H. Ecker   (Chair)
A. Steindl   (Co-chair)
S. Jakubek   (Co-chair)
R. Mühlberger,   (Conference Organization)
G. Canek   (Website, IT)
M. Neumann   (Media)
N. Nagele-Wild   (Paper Management)
B. Pimperl, R. Polterauer, V. Rothbauer   (Secretaries)
F. Breitenecker
J. Edelmann
M. Kaltenbacher
W. Mack
M. Plöchl
H-B. Schmiedmayer

Organisation and Structure of the Scientific Program

- KL
  Keynote Lectures
  Organizers: G. Rega, H. Ecker, A.Steindl

- GT
  General Track Contributions
  Organizers: A. Steindl, H. Ecker

- MS-01
  Reduced-Order Modeling and System Identification
  Organizers: L.A. Bergman, M. Eriten, Y.S. Lee

- MS-02
  Asymptotic Methods
  Organizers: I.V. Andrianov, J. Awrejcewicz, L.I. Manevitch

- MS-03
  Computational Methods
  Organizers: H. Dankowicz, J. Sieber, Th.P. Sapsis

- MS-04
  Experiments in Nonlinear Dynamics and Control
  Organizers: W. Lacarbonara, H. Yabuno, G. Michon

- MS-05
  Slow-Fast Systems and Phenomena
  Organizers: A. Neishtadt, D.D. Quinn, J.J. Thomsen

- MS-06
  Fractional Derivatives
  Organizers: J.A.Tenreiro Machado, R. Caponetto, C. Ionescu, P. Melchior

- MS-07
  Dynamics and Optimization of Multibody Systems
  Organizers: J. Ambrosio, F.L. Chernousko, P. Eberhard

- MS-08
  Nonlinear Phenomena in Mechanical and Structural Systems
  Organizers: B. Balachandran, S. Natsiavas, J. Warminski

- MS-09
  Nonlinear Dynamics of Structural and Machine Elements
  Organizers: Y.V. Mikhlin, M. Cartmell, K.V. Avramov

- MS-10
  Non-Smooth Dynamics
  Organizers: C-H. Lamarque, R.I. Leine, N.v.d. Wouw

- MS-11
  Systems with Time Delay
  Organizers: T. Insperger, E. Butcher

- MS-12
  Micro- and Nano-Electro-Mechanical Systems
  Organizers: J. Rhoads, S.W. Shaw, M.I. Younis

- MS-13
  Nonlinear Dynamics in Biological Systems
  Organizers: G. v.d.Heijden, S. Goyal

- MS-14
  Nonlinear Dynamics for Engineering Design
  Organizers: S. Lenci, M. Wiercigroch, B. Epureanu

- MS-15
  Energy Transfer and Harvesting in Nonlinear Systems
  Organizers: O. Gendelman, G. Kerschen, A. Vakakis

- MS-16
  Random Dynamical Systems: Recent Advances and New Directions
  Organizers: R. Iwankiewicz, D. Yurchenko

- MS-17
  Time-periodic Systems
  Organizers; S.C. Sinha, T. Pumhössel

- MS-18
  Control and Synchronization of Chaos and Complex Dynamics
  Organizers: S. Boccaletti, S. Jakubek, A. Pisarchik

- MS-19
  Fluid-Structure Interaction
  Organizers: A. Metrikine, O. Gottlieb, K. Hourigan

- MS-20
  Wave Propagation in Mechanical Systems
  Organizers: M. Ruzzene, F. Romeo, Y. Starosvetsky