

## INTAS Strategic Scientific Workshop

# ADVANCED DYNAMICAL MODELLING IN STRUCTURAL CONTROL

Vienna University of Technology, Austria, July 16<sup>th</sup>, 2004

Post-Workshop of the

Third European Conference on Structural Control (3ECSC)

Vienna University of Technology, Austria, July 12 – 15<sup>th</sup>, 2004

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### Workshop Chairs:

Hans Irschik

Institute for Technical Mechanics, Johannes Kepler University Linz, Austria

Agnessa Kovaleva

Space Research Institute, Russian Academy of Sciences – Moscow, Russia

Alexander Belyaev

Department of Mechanics and Control, Polytechnic University of St. Petersburg,

Russia

### Organization board:

Hans Irschik: Johannes Kepler University Linz, Austria

Alexander Belyaev: Polytechnic University St. Petersburg, Russia

Agnessa Kovaleva: Russian Academy of Sciences Moscow, Russia

Michael Krommer: Johannes Kepler University Linz, Austria

Rainer Flesch: Arsenal Research Vienna, Austria

Franz Ziegler: Vienna University of Technology, Austria

Rudolf Heuer: Vienna University of Technology, Austria

## General Information

The INTAS workshop is scheduled on Friday, 16<sup>th</sup> 2004, 8.00-13.00 in one of the Lecture Halls of the Vienna University of Technology used by the 3ECSC. Lunch and Coffee Breaks will be offered to the participants of the INTAS workshop.

### OBJECTIVES

This workshop is aimed at bringing together scientists from NIS with an outstanding expertise in the dynamic modelling of structures with scientists in the field of structural control. In combination with the ESF – Workshop taking place at the same time at the Technical University of Vienna, the Third European Conference of Structural Control is a perfect event for the INTAS workshop to be embedded into. We believe that the workshop will result into the creation of research teams with participation from the NIS, the conference participants and the participants of the ESF – Workshop. Such teams should push the frontiers of Structural Control to new dimensions, resulting into the advanced design of intelligent structures.

The key objectives are:

- Enabling the interchange of ideas from advanced dynamical modelling of structures and from structural control.
- Clarification of expectations of researches in the field of structural control from advanced dynamical modelling and vice versa.
- Development of joint NIS and European research proposals and teams.
- Encouragement of collaborations among industry and universities across NIS borders.

### TOPICS

The main topics addressed in the workshop are:

- Magneto-Electro-Mechanical Modelling of Structures
- Smart Structures
- Non – Linear material behavior (damage mechanics, elasto-plasticity, etc.)
- Probabilistic loads
- Modelling of dynamical inverse problems
- Structure – Control interaction

### REGISTRATION

Registration for the workshop is possible at the registration desk of the Third European Conference on Structural Control during regular registration hours. The fee for non-presenting attendees of the workshop is 50€ including coffee breaks and lunch on Friday. Pre – registration is possible by contacting Professor Hans Irschik ([irschik@mechatronik.uni-linz.ac.at](mailto:irschik@mechatronik.uni-linz.ac.at)).

**Scientific Programme**

08:00-08:15	Opening Session: Chair – Hans Irschik
08:15-09:35	Session I: Chair - Agnessa Kovaleva
<b>09:35-09:45 Coffee Break</b>	
09:45-11:05	Session II: Chair – Alexander Belyaev
<b>11:05-11:15 Coffee Break</b>	
11:15-12:35	Session III: Chair – Hans Irschik
12:35-13:00	Closing Session: Chairs – A. Kovoleva, A. Belyaev, H. Irschik
<b>13:00 Lunch</b>	

**Opening Session: Chair – Hans Irschik**

08:00-08:15	Greeting and Introduction
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**Session I: Chair - Agnessa Kovaleva**

08:15-08:35	Alexander Volkov	To be announced
08:35-08:55	Mikayel Melkumian	Recent applications of seismic isolation for civil buildings in Armenia
08:55-09:15	Ludmilla Soldatova, J. Tentiev, N. Rudenko	Experimental models and buildings on the seismic isolating sliding bearings
09:15-09:35	Ruben Gevorgyan, L. Aghalovyan, A. Sahakyan	On an application of the asymptotic method to the solution of dynamic boundary-value problems for the laminar foundations and the bases of construction

<b>Session II: Chair – Alexander Belyaev</b>		
09:45-10:05	Eron L. Aero, A.L. Fradkov, B.R. Andrievsky	Some problems of control of high nonlinear oscillations in crystalline lattices
10:05-10:25	Dmitry A. Indeitsev, N.F. Morozov, V.N. Naumov, E.I. Prokuratova	The influence of rheological elements of fracture on modelling of the wave processes in the rod of complex structure
10:25-10:45	Vladimir A. Polyansky:	Modelling objects aimed at the development of control algorithms
10:45-11:05	Alexander A. Sukhanov, Yu. G. Ispolov	Adaptive tuning of parameters of the model of the towed underwater structure

<b>Session III: Chair – Hans Irschik</b>		
11:15-11:35	Fabio Casciati	The Messina Strait bridge: a case study for structural monitoring and control
11:35-11:55	Lucia Faravelli	Some Features of Bridge Monitoring
11:55-12:15	Hans Irschik, Uwe Pichler	Partial – Domain Eigenstrain Actuation without Elastic Displacements
12:15-12:35	Franz Ziegler	Suppression of force induced structural vibrations by controlled eigenstrains

<b>Closing Session: Chairs – A. Kovoleva, A. Belyaev, H. Irschik</b>	
12:35-13:00	Open Discussion