

Vibro Impact

Issue 2, March 2006

International Centre of Vibro-Impact Systems

Overview

Vibro-impact systems can be described as systems that utilise synergetic effects of multiple impacts. Vibro-impacts processes can have a detrimental effect, for example, catastrophic failures due to impact fatigue or causing the so-called 'white fingers' disease (known as the Hand-Arm Vibration Syndrome) to hammer operators. Conversely, the skilful use of these processes results in the introduction of principally new and effective technologies. Vibro-impact systems can be used in diverse areas, such as mining and construction, medical and biomechanical applications, as well as for vibration protection and ultrasonic machining. A major purpose of the ICovIS is to bring together the expertise of vibro-impact processes accumulated in academia and industry for development of vibro-impact engineering. It is envisaged that such collaboration provided by the Centre will bridge an existing gap between the industry and academia in this area. The Centre has strong industrial links all over the world and leading UK companies (Airbus, BAE, JCB, etc.) participated in its inauguration session.

Report from the 2nd Topical Workshop "Shock and Vibration Protection of Equipment and Operators in Harsh Environmental Conditions" (Roma, Italy)

A topical workshop "Shock and Vibration Protection of Equipment and Operators in Harsh Environmental Conditions" took place at Park Hotel Villa Grazioli, Frascati/Rome, Italy, 21 – 24 August 2005.

The workshop united representatives from both academia and industry. The following topics were presented and discussed:

The Characteristics of a Vibration Isolator Consisting of a Parallel Combination of a Spring and an Elastically Supported Damper

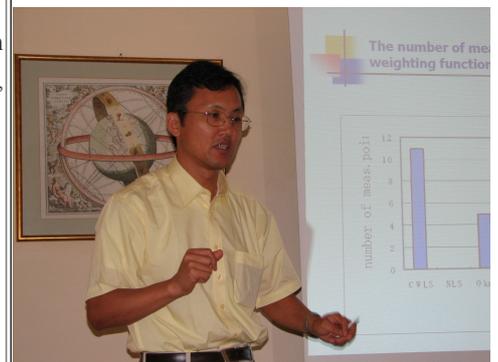
M.J. Brennan, A. Carrella and T.P. Waters, ISVR University of Southampton UK, V. Lopes Jr, UNESP/Ilha Solteira, Brazil

Foundations for Design of Vibro-Safe Hand-Held Percussion Machines

V.I. Babitsky, I.J. Sokolov and E.V. Golysheva, Wolfson School of Mechanical and Manufacturing Engineering, Loughborough University, Loughborough, Leicestershire LE11 3TU, UK

Vibration Isolation of Delicate Equipment in Harsh Environmental Conditions, Theoretical Examples

Photos from the 2nd Topical Workshop "Shock and Vibration Protection of Equipment and Operators in Harsh Environmental Conditions"



Professor M. Okuma (Japan)

A. Vepruk, Principal Scientist, Ricor, Cryogenic and Vacuum Systems, Israel

Finite Elements Analysis and Tests for Isolators for Electro Optical Sensor

Y. Soffer, Head of Analytical Department, ELOP (Israel)

**Vibration Isolation of Delicate Equipment in Harsh Environmental Conditions,
Vibration Isolation of Cots PCB**

A. Vepruk, Principal Scientist, Ricor, Cryogenic and Vacuum Systems, Israel

A basic study on CAE for Cruising Boat's Vibration and Noise

M. Okuma, Department of Mechanical and Aerospace Eng., Tokyo Institute of Technology, Japan

Vibration Control for Infrared Cryogenic Applications in Harsh Environmental Conditions,

A. Vepruk, Principal Scientist, Ricor, Cryogenic and Vacuum Systems, Israel



Professor V.I. Babitsky (UK)



Professor M. Okuma (Japan), Professor M. Brennan (UK) and Dr A. Vepruk (Israel)

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1st International Conference on Vibro-Impact Systems (Loughborough, 2006)

The 1st International Conference on Vibro-Impact Systems will be held at Loughborough University, UK on 20-22 July 2006. The website of the Conference is www.lboro.ac.uk/icovis.

The Chairman of the conference is Vladimir Babitsky (UK); Co-Chairs are Raouf Ibrahim (USA), Masaaki Okuma (Japan) and Vadim Silberschmidt (UK). The Scientific Committee of the Conference comprises leading researchers in vibro-impact systems.

The aim of the conference is to bring together academic and industrial experts from the fields of non-linear and structural dynamics, continuum mechanics, materials science, physics, applied mathematics, and mechanical, aerospace, civil and systems engineering to facilitate the mutual understanding of theory and applications of vibro-impact systems. The areas covered by this Conference include: excitation, synchronisation and stabilisation of vibro-impact processes; dynamics of vibro-impact machines and technological processes; vibration protection of operators and structures in harsh environment; synergistic effects of repeated impacts on solids and granular media; non-linear fluid-solid interactions; analytical, experimental and numerical methods for the analysis of vibro-impact systems and processes; synthesis and optimisation of vibro-impact systems; measurements and applications of vibro-impact processes.

At the moment, abstracts of some 80 papers have already been submitted by participants from 20 countries.

The papers presented at the 1st International Conference on Vibro-Impact Systems will be published (after a peer-review process) in a Special Issue of the *Journal of Sound and Vibration* scheduled for 2007.

News from the members

We are happy to publish any information about local activities of ICoVIS members in the area of VIS. If you would like to share your news with other readers of the newsletter, please send us up to 100 words and (optionally) a photo.

You can also submit advertisements for scientific events, new books, products and job positions relevant to ICoVIS subject areas (these will be published at the editor's discretion).

Please submit your information by email to ICoVIS e-newsletter editor (M.Tourichtcheva@lboro.ac.uk) as WinWord file, with images in jpeg/bmp/tiff format.

