

XXI BIENNIAL SYMPOSIUM ON “MEASURING TECHNIQUES IN TURBOMACHINERY”

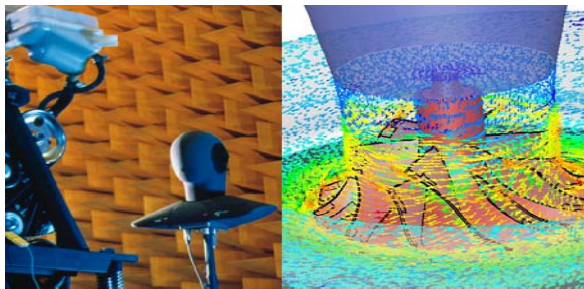
*Transonic and Supersonic Flow in Cascades
and Turbomachines*

22nd – 23rd March 2012, Valencia, Spain

Organized by

CMT-MOTORES TÉRMICOS

UNIVERSITAT POLITÈCNICA DE VALÈNCIA



Symposium organizers:

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INTRODUCTION

The biennial symposium on Measuring Techniques in Turbomachinery has reached its XXI edition, and it will take place for the first time in Spain. After the Milano Symposium in 2010, the 2012 edition of the Symposium will be organized by the Research Institute CMT-Motores Térmicos at the Universitat Politècnica de València. The Symposium will cover the most up-to-date aerodynamic and heat transfer measurement techniques in Turbomachinery from low speed to supersonic regimes, using intrusive as well as optical techniques, including micro-sensors, and applying innovative data processing techniques.

This XXI biennial symposium on Measuring Techniques in Turbomachinery will be hosted by the Research Institute CMT-Motores Térmicos at the Universitat Politècnica de València on the 22nd and 23rd of March 2012. The focus will be on two items, namely the development of new experimental measurement techniques and novel data processing techniques. The sessions will be arranged as workshops where discussions between the speaker and researchers will be promoted. The Symposium scheduling will provide time, in formal and informal sessions, for discussion on the current problems related to shortages or failures in the different approaches to trigger solutions and/or alternative procedures. An electronic copy (on a USB key) of all the papers will be distributed to all the symposium participants at the beginning of the Symposium.

OBJECTIVE

The objective of this symposium is to provide a forum for researchers from universities, research institutes and industry to get together, discuss problems and share experiences involved in making measurements in turbomachines. The symposium covers the development of measurement techniques for the study of aero-thermal phenomena in components such as cascades, compressors, turbines, turbochargers, engines and power plants.

PROPOSED TOPICS

Experimental techniques and data-reduction methods: novel concepts, advanced optical and time-resolved instrumentation, MEMS, test rig design, novel mathematical methods applied to experimental data, experimental aero-acoustics.

Industrial application of advanced measurement techniques: performance measurements, engine and turbochargers deterioration measurement, high temperature instrumentation.

INSTRUCTION FOR AUTHORS

Contributions should concentrate on the development and experience in measurement techniques in the environment of turbomachines. Emphasis should be put on the most recent on-going research and in the proposed procedure, not on the results.

An extended abstract should be submitted no later than the 2nd of December 2011. All abstracts should be written in MS Word using the template provided on the symposium web site (www.cmt.upv.es/meastery).

A typical abstract should be self contained as a description of the research work, between 600 to 800 words long including figures and tables. Following the review comments, the final version of the paper should be produced by the 17th of February in MS Word using the template provided on the symposium web site. The paper should allow participants to get a good overview of the range of research activities and problems encountered. It is hoped that this will encourage discussion and interaction between participants.

The presentation should not exceed 20 minutes, to allow 10 minutes for further discussion. Presentations should not include a discussion of experimental data, experimental facilities or standard measurement equipment except where they are used to demonstrate the advantages/disadvantages of the new measurement technique. Emphasis should be made on the technique and data-processing and evaluation themselves.

SCHEDULE

2011	December	2 nd	Deadline for the submission of the extended abstracts
2012	January	13 th	Notification of acceptance
2012	February	17 th	Final paper to be submitted by
2012	March	2 nd	Registration deadline
2012	March	22 nd -23 rd	Symposium

SYMPOSIUM FEE

The conference fee is 175 EUR, includes lunches, beverages, banquet dinner, USB key, and administrative costs. To encourage greater participation in the symposium by university members, fellowships will be awarded to the **first ten** university students completing the registration. The recipient of a fellowship is entitled to attend the symposium at the reduced fee of 100 EUR. The request to be considered for this fellowship must be accompanied by a copy of the University Student card and a recommendation letter from his or her professor.

SPONSORED BY

Symposium schedule 22/03/2012

START	END	TOPIC	PAPER
8:30	9:30		REGISTRATION
9:30	10:00		SPEECH ABOUT UPV – CMT (J.M. Desantes)
10:00	10:30	Acoustics (Chairman: A. Torregrosa)	EXPERIMENTAL CHARACTERIZATION OF ACOUSTIC PRESSURE WAVES PROPAGATING IN CIRCULAR DUCTS. Giovanni Ferrara, Lorenzo Ferrari, Giulio Lenzi. "Sergio Stecco" Department of Energy Engineering, University of Florence. Italy
10:30	11:00		THE USE OF CAUSALITY METHOD FOR DETECTING THE NOISE SOURCES IN ISOLATED TURBOMACHINERY AIRFOILS AND CASCADE. Stefano Bianchi; Alessandro Corsini. University of Roma – Sapienza, Department of Mechanical and Aerospace Engineering. Italy . Anthony G. Sheard. Flakt Woods Ltd. UK
11:00	11:30		COFFEE BREAK
11:30	12:00	Aerodynamic Probes Chairmen: A. Kalfas - D. Vogt	DUAL HOT WIRE X-PROBE WITHOUT CROSS PRUNE-WIRE INTERFERENCE EFFECTS. Argüelles Díaz, Katia María. Fernández Oro, Jesús Manuel. Galdo Vega, Mónica. Blanco Marigorta, Eduardo. University of Oviedo, Fluid Dynamics Group. Spain
12:00	12:30		RESONANCES INFLUENCE IN RECESSED-MOUNTED TRANSDUCERS USED FOR UNSTEADY PRESSURE MEASUREMENTS. Antonio Sanz Luengo; Vogt, D. M.; Fransson, T. H. The Royal Institute of Technology (KTH) Chair of Heat and Power Technology. Sweden
12:30	13:00		INTEGRATED PRESSURE AND VELOCITY MEASUREMENTS USING A SINGLE PRESSURE SENSOR ON THE CONE OF A WIND TURBINE. Konstantinos N. Antivachis and Anestis I. Kalfas. Department of Mechanical Engineering, Aristotle University of Thessaloniki. Greece
13:00	14:30		LUNCH
14:30	15:00	Temperature Measurements (Chairman: J. Galindo)	NUMERICAL ANALYSIS AND CHARACTERIZATION OF FINE WIRE THERMOCOUPLES. Laura Villafañe, Guillermo Paniagua. Turbomachinery and Propulsion Department. von Karman Institute for Fluid Dynamics. Belgium
15:00	15:30		INFLUENCE OF THERMOCOUPLE THERMAL INERTIA IN IMPINGEMENT HEAT TRANSFER EXPERIMENTS USING TRANSIENT TECHNIQUES. Alexandros Terzis. Group of Thermal Turbomachinery (GTT). École Polytechnique Fédérale de Lausanne. Switzerland . Jens von Wolfersdorf; Bernhard Weigand; and Peter Ott. Institute of Aerospace Thermodynamics (ITLR). Universität Stuttgart. Germany . Guillaume Wagner. ALSTOM. Switzerland
15:30	16:00		TOTAL TEMPERATURE PROBES FOR TURBINE EFFICIENCY MEASUREMENTS IN TRANSONIC ROTATING RIGS. Victor Pinilla, Raúl Vázquez. Industria de Turbo Propulsores. Andoni Puente. Centro de Tecnologías Aeronáuticas. Spain
16:00	16:30		INSTRUMENTATION FOR EXPERIMENTAL INVESTIGATION OF HEAT TRANSFER IN TURBINE PARTS. Karelin D.V., Mukhina S.D.; Public Corporation «NPO«Saturn». Russia
16:30	18:00		COFFEE + LAB VISIT
20:30			GALA DINNER

Symposium schedule 23/03/2012

START	END	TOPIC	PAPER
8:30	9:00	Optical Techniques (Chairman: J.V. Pastor)	ON MEASUREMENT AND EVALUATION OF FLOW CONDITIONS AT LIMIT LOAD OF TURBINE BLADE CASCADES. Pavel Šafařík. Czech Technical University in Prague. Department of Mechanical Engineering. Martin Luxa, Helena Picmausova, David Šimurda. Institute of Thermomechanics. Academy of Sciences, v.v.i. Czech Republic
9:00	9:30		A NON-INVASIVE OPTICAL TECHNIQUE TO OBSERVE TURBOCHARGER SHAFT WHIRL. J. V. Pastor, J.R. Serrano, V. Dolz, M.A. López. CMT-Motores Térmicos, Universitat Politècnica de València. Spain
9:30	10:00		APPLICATION OF SPECTROSCOPY FOR ANALYSIS OF ADVANCED COMBUSTION MODES IN COMPRESSION IGNITION ENGINES. J.V. Pastor, J. M. García-Oliver, A. García and C. Micó. CMT-Motores Térmicos, Universitat Politècnica de València. Spain
10:30	11:00		A DECISION MAKING ALGORITHM FOR AUTOMATIC SHOCK WAVES DETECTION IN SHLIEREN IMAGING . Flora Tomasoni, Bayindir H. Saracoglu, Guillermo Paniagua, von Karman Institute for Fluid Dynamics. Belgium
11:00	11:30	COFFEE BREAK	
11:30	12:00	Novel Facilities (Chairman: A. Broatch)	MEASUREMENT OF THE AERODYNAMICS IN THE PRIMARY ZONE OF A LOW-NOX COMBUSTOR AT ATMOSPHERIC AND ISOTHERMAL CONDITIONS. Christian Faustmann. Graz University of Technology. Institute for Thermal Turbomachinery and Machine Dynamics. Andreas Lang. Andritz Hydro GmbH. Fabrice Giuliani. Combustion Bay One. Science Park Graz. Austria
12:00	12:30		CHARACTERIZATION OF A HIGH SUBSONIC WIND TUNNEL TEST SECTION TO DEVELOP A STUDY APPROACH TO SOLVE THE INVERSE HEAT CONDUCTION PROBLEM. Baldani Francesco,Ir.; Walter Bosschaerts,Prof. Dr. Ir. Royal Military Academy. Belgium
12:30	13:00		A NEW LINEAR CASCADE TEST FACILITY FOR USE IN ENGINEERING EDUCATION. Monaco, L.; Vogt, D. M.; Fransson, T. H. The Royal Institute of Technology (KTH) Chair of Heat and Power Technology. Sweden
13:00	13:30	CLOSING DISCUSSIONS	
13:30	15:00	LUNCH	