Preface

Welcome to Naples for this 11th edition of the International conference on Quantitative Infrared Thermography (QIRT 2012). We at Department of Aerospace Engineering are proud and pleased to host this major event of infrared thermography, which takes place on June 11-14, 2012 in the University of Naples Conference Centre.

QIRT conferences started in 1992 in Paris (France), as Eurotherm Seminars, and have been held every two year since then: Sorrento, Italy (1994), Stuttgart, Germany (1996), Lodz, Poland (1998), Reims, France (2000), Dubrovnik, Croatia (2002), Brussels, Belgium (2004), Padova, Italy (2006) Krakow, Poland (2008) and Québec, Canada (2010). In 2002, QIRT conferences became independent international events, under the umbrella of the QIRT Working Group (QIRT WG), and are now amongst the most important ones in this fast growing field. In 2012, the QIRT conference comes to Naples area for the second time, truly indicating the strong activity in Infrared Thermography of the University of Naples group. More information about QIRT and past conferences is available on QIRT website http://qirt.gel.ulaval.ca.

Moreover in 2004, the QIRT WG launched the Journal of QIRT (QIRT J.) that publishes peer-reviewed papers which are either selected for their high quality level within the QIRT conference proceedings (with enlarged and revised versions) or directly contributed by authors. From 2012 with its 9th volume, the QIRT J. is published by Taylor & Francis and indexed within the large academia institutions.

The Quantitative Infrared Thermography conference represents an international forum which brings together specialists, from industry and academia, who share an active interest in the latest developments of science, experimental practices and instrumentation, related to infrared thermography

Also QIRT 2012 covers, but it is not limited to, the following topics:

- State of the art and evolution in the field of infrared scanners and imaging systems, allowing quantitative measurements, and related data acquisition and processing.
- Integration of thermographic systems and multispectral analysis. Related problems like: calibration and characterization of infrared cameras; emissivity determination; absorption in media; spurious radiations, 3D measurements; certification and standardization.
- Thermal effects induced e.g. by electromagnetic fields, elastic waves or mechanical stresses.
- Application of infrared thermography to radiometry, thermometry and physical parameters identification in all fields such as (and not limited to): industrial processes; material sciences; termo-fluid-dynamics; structure and material non-destructive evaluations; cultural heritage; environment; fluid mechanics; medicine; biomedical science; food production.

QIRT 2012 received 210 papers from 36 countries that are organized in the following 18 sections and arranged in a parallel three-track program:

Biomedical Applications
Calibration and Metrology
Civil Engineering & Buildings
Environment
Fluid Dynamics & Energetics
Image & Data Processing
Induction Thermography
Industrial Applications
Microscale Applications
Monitoring & Maintenance
Multi Spectral IR and IR Signature
Non Destructive Evaluation
NDE Applied to Composite Structures
Novel Techniques
Thermomechanics
Thermographic Systems & Components
Thermophysics
Vibrothermography

The QIRT conferences are also an opportunity to reflect the current state of the art by inviting key personalities to deliver plenary lectures. In 2012, we are much privileged to have the following presentations:

Thermal diffusivity measurements as a non destructive tool for the microstructural characterization and the integrity assessment of thermal barrier coatings
Federico Cernuschi

An overview of infrared analysis of thermomechanical behavior of materials
André Chrysochoos

A novel microspectrometer technology for IR spectral imaging applications
Lorenzo Faraone

IR thermography in heat transfer
Gad Hetsroni

As usual, also QIRT12 starts with a full day (June 10th) of pre-conference courses:

Course A - Basic Thermography
Prof. X. Maldague, Université Laval, Canada

Course B - Application of dynamic thermography to Nondestructive Testing
Prof. G. Busse, University Stuttgart, Germany

Course C - Applications of IR Thermography to Thermo-Fluid-Dynamics
Prof. G. M. Carlomagno, University of Naples Federico II, Italy

Course D - Application of thermography to buildings
Prof. E. Grinzato, CNR-ITC, Padova, Italy

Another established tradition of the QIRT conferences is the exhibition by top companies, which is held concurrently with the sessions. For QIRT 2012, the organizing committee has to thank the following companies for their active participation:

- FLIR (www.flir.com)
- InfraTec GmbH (www.InfraTec.de)
- Telops (www.telops.com)
- Xenics (www.xenics.com)

Finally, QIRT 2012 could not have been a success, as I hope it will be, without the help of University of Naples, the official host institution, and in particular the Department of Aerospace Engineering and the technical sponsors: CIRA (Centro Italiano Ricerca Aerospaziale) and EMA (Europea Microfusioni Aerospaziali). Moreover, the QIRT 2012 Organizing Committee wishes to thank all the students of the research group, who assisted them with their help. At last but not at least, the thorough support of the QIRT WG, and its chairman Daniel Balageas, is wholly acknowledged.

Special thanks are due also to all the participants to the conference, who spent time and money to make this 11th edition of the QIRT conference series a true success. I hope their effort was worth.

I wish you all a fruitful and successful QIRT 2012 conference and a nice, memorable stay in Naples.

QIRT 2012 Chairman
Gennaro Cardone