Preface
The annual Conference of the “Unione Italiana di Termofluidodinamica” (UIT) aims at promoting cooperation in the field of heat transfer and thermal sciences, by bringing together scientists and engineers working in related areas.

The 31st UIT Conference was held in Moltrasio (Como), Italy, 25–27 June, 2013 at the Grand Hotel Imperiale.

The response has been enthusiastic, with more than 70 quality contributions from 224 authors on heat transfer related topics: natural, forced and mixed convection, conduction, radiation, multi-phase fluid dynamics and interface phenomena, computational fluid dynamics, micro- and nano-scales, efficiency in energy systems, environmental technologies and buildings.

To encourage the debate, the Conference Program has scheduled ample poster sessions and invited lectures from the best experts in the field along with a few of the most talented researchers. Keynote Lectures were given by Professor Roberto Mauri (University of Pisa), Professor Lounés Tadrist (Polytech Marseille) and Professor Maurizio Quadrio (Politecnico di Milano).

This special volume collects a selection of the scientific contributions discussed during this conference; these works give a good overview of the state-of-the art Italian research in the field of Heat Transfer related topics.

I would like to thank sincerely the authors for presenting their works at the conference and in this special issue. I would also like to extend my thanks to the Scientific Committee and the authors for their accurate review process of each paper for this special issue. Special thanks go to the organizing committee and to our sponsors.

As a professor of Politecnico di Milano, let me say I am very proud to have been the chair of this conference in the 150th anniversary of my university.

Professor Alfonso Niro
About UIT (Unione Italiana Termofluidodinamica)

The Italian Union of Thermal-Fluid Dynamics (UIT) was founded in Bologna on December 19, 1984, following a proposal by Professor Enrico Lorenzini.

Mission

The Italian Union of Thermal-Fluid Dynamics (UIT) has the fundamental aim to contribute to the progress of the Italian research and application of thermal-fluid dynamics, by promoting and enhancing the scientific, professional and social values among its members, as well as the formation of new generations of young scientists towards the research work in the field of thermal sciences, heat transfer and their applications.

In order to achieve these objectives UIT undertakes:

- the organization of a heat transfer conference, on yearly basis
- the organization of international Conferences, Seminars, Courses, etc.
- the organization of a summer school, on yearly basis, for PhD students and young researchers
- the institution of a prize, on yearly basis, for the best Italian Masters thesis dealing with thermal-fluid dynamics
- the institution of a prize, on a two-year basis, for the best Italian PhD thesis dealing with thermal-fluid dynamics.

Governance

The governing bodies of the Italian Union of Thermal-Fluid Dynamics (UIT) are:

- the assembly (Assemblea)
- the steering committee (Comitato Direttivo)
- the president (Presidente)
- the auditors (Revisori dei conti)
- the arbiters (Probiviri)
- the secretary (Segretario).

The assembly of the UIT is made up by all ordinary members (natural persons, institutions and associations), honorary members, distinguished members and meets at least once a year. The assembly establishes the activity of the association, votes its budget and balance, appoints the governing bodies. At present more than 200 members from universities, national laboratories and industries take part in the UIT. The scientific management of the UIT, subject to the limitations of the constitution (Statuto), is handled by a steering committee chosen from its membership. It is made up of seven officers (president, vice-president, secretary, and four members). The steering committee is renewed every three years. President, vice-President and secretary cannot be appointed for the same chair more than twice on end.
UIT 2013

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UIT conferences

1  1983   Trieste   16 1998   Siena
2  1984   Bologna   17 1999   Ferrara
3  1985   Palermo   18 2000   Cernobbio (CO)
4  1986   Genova    19 2001   Modena
5  1987   Torino    20 2002   Maratea (PZ)
6  1988   Bari      21 2003   Udine
7  1989   Firenze   22 2004   Genova
8  1990   Ancona    23 2005   Parma
9  1991   Pisa      24 2006   Napoli
10 1992   Genova    25 2007   Trieste
11 1993   Milano    26 2008   Palermo
12 1994   L’Aquila  27 2009   Reggio Emilia
13 1995   Bologna   28 2010   Brescia
14 1996   Roma      29 2011   Torino
15 1997   Torino    30 2012   Bologna

31  2013  MOLTRASIO (CO)