
Editorial

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The 5th Conference of the International Marangoni Association (IMA-5) on Interfacial Fluid Dynamics and Processes was held in Florence, June 7–10, 2010 in the villa Finaly, a splendid establishment of the Universités de Paris. Ninety seven participants from 12 countries contributed, with 67 oral presentations and 31 posters, to the three-day conference making it packed with presentations and discussions of stimulating, new scientific results. The broad scope of the complex conference subject attracted physicists, chemists, engineers and mathematicians, with a well-balanced proportion between theorists and experimentalists. They presented various topics from hydrodynamics to crystal growth processing, from contact line motion to coalescence of drops and evaporation, from instabilities of different kinds to waves, including gravity or weightlessness, with vibration or with electrical fields. It is worth mentioning that it was in Florence that Carlo Marangoni, a Professor at the Lyceo Dante in this town during the 18th century, whose name is given to the IMA conferences, studied the spreading of one liquid on another one. The surface tension of a liquid, or the interfacial tension, is one of the main physical parameters in all problems studied in this conference. Surface tension was an unknown concept at the time of Carlo Marangoni who could nevertheless characterize and classify the different immiscible liquids according to this property by their spreading behaviour. Carlo Marangoni might have been astonished to see how large, how complex and important, and how challenging the field of interfacial fluid dynamics is and, that the spreading and motion of liquids or of drops on substrates is still under investigation.

This issue of the European Physics Journal contains 21 selected and fully reviewed contributions to IMA-5. The main part of the papers deals with surface tension driven flows, either chemocapillarity or thermocapillarity or with wetting flows. The papers contain studies that either include or exclude gravity, take into account electrical or magnetic fields, and discuss ambient airflow near the free surface or surfactants on a free interface. Special attention is given to time-dependent thermocapillary flow in pools and in liquid bridges and to the behaviour of fine particles in the time-dependent flow characterized by hydrothermal waves. There are also papers that deal theoretically and numerically with the so called Marangoni instability, either in thin films, in layers or in double layers, with or without evaporation or vibration. Formation or saturation of drops are also treated. The reader will find in this issue a fine cross section of interfacial fluid dynamics with new details and with enough references to further explore the field. The contributions are mainly explorative but most of them have applied aspects.

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About the IMA-conferences.

The IMA-conferences were founded with IMA-1 in castle Rauischholzhausen (Justus-Liebig-Universität Giessen, Germany), followed by IMA-2 in Brussels (Université Libre de Bruxelles, Belgium), IMA-3 in Gainesville (University of Florida, USA), IMA-4 in Tokyo, Noda-Shi (Tokyo University of Science), and now IMA-5 in Florence (Italy) (Université Paris Sud 11, France). IMA-6 is lead to occur in 2012 in the city of Haifa, Israel, organized by the Technion.

The International Marangoni Association (the acronym IMA should be pronounced in German; thus IMA sounds like the Hebrew word for mother) is a casual non-profit organization, where the responsibility for organizing the next conference in a 2–3 years turnus is handed over from the last organizer to the predecessor. It is a rule to organize the IMA-conferences at low costs for the attendees to allow young scientists to participate. The organizer should use University facilities at low or at no costs and should raise funding (if possible) for supporting scientists from developing countries. IMA-conferences are organized without parallel sessions, rather with more time given to poster presentations. Enough time is given after the oral presentation for discussion, which is lead by well-prepared chairpersons to initiate interesting questions. Selected conference papers should be published either as a book or as a special issue of a suitable journal.