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**Applied Physics B**
**Lasers and Optics**



*Editorial*

# Field Laser Applications in Industry and Research

The first international conference on *Field Laser Applications in Industry and Research – FLAIR* was held from September 2–7, 2007 at the Demidoff Hotel in the hills of Mugello overlooking Florence.

FLAIR brings together various fields of applied research. *Field Laser Applications in Industry and Research* is a growing and vital discipline and benefits from developing an integrative approach and fostering an environment where researchers and industry can talk, listen and develop integrative projects on all aspects of spectroscopic analysis. We aim to stimulate new research initiatives and field laser applications with a broad interdisciplinary approach.

FLAIR 2007 provided the launching pad for future meetings. FLAIR brings our research aims together, and allows not only the traditional horizontal but also vertical networking among different applications and scientific disciplines. We intend to attract not only specialists, but also people who know quite well measurement challenges in industry and research but may have only little knowledge about laser based solutions. In this context the industry session and the exhibition play an important role for the conference. Poster sessions and oral presentations completed the program.

At a glance, the list of topics covers Applied Laser Spectroscopy, Environmental Research and Biogeochemistry, Airborne Atmospheric Research, Life Sciences, Medicine and Agriculture, Plasma and Combustion Diagnostics and Stable Isotope Ratio Infrared Spectroscopy. The mainstay of FLAIR is a series of sessions with reviews and overview lectures by international experts emphasizing integrative and multidisciplinary approaches.

From more than 100 oral and poster contributions the papers in this special issue have been selected to represent a balanced overview of the liveliness and the scientific diversity within field laser applications in industry and research: Sune Svanberg's presentation of laser based diagnostics ranging from environmental research to human health, Frans Harren's overview of laser diagnostics applications in life science and agriculture, Ulrike Willer's discussion of the potential and limits of mid-infrared laser spectroscopy for the detection of explosives, the summary of the present state of the art in airborne atmospheric research in an overview paper by Fried et al., just to mention a few examples. A highlight of the conference was the evening lecture "Mission to Mars and the Earth's Stratosphere: Laser Applications to Planetary and Atmospheric Research" by Chris Webster presented in the *sala de cinquecento* of Palazzo Vecchio, the famous old town hall of Florence.

FLAIR 2007 was co-located with a workshop on Stable Isotope Ratio Infrared Spectroscopy organized by Erik Kerstel and Livio Gianfrani and an overview article has been included in this special issue. All papers underwent the refereeing process of Applied Physics B, thereby ensuring the level of quality associated with this journal.

Covering such a broad range of research fields and topics would not have been possible without the support and efforts of the members of the scientific advisory committee, which have assured and contributed to the high scientific level of the program. We also thank all those, who supported FLAIR to make the conference such a success: Silvia Viciani for the local organization, Lisa Gambicorti, Francesca Simonetti and Alessandro Zuccaro-Marchi for logistics, Roberta Parenti and Simonetta Renai for administration.

FLAIR, as put in the dictionary, represents both, "a uniquely attractive quality" (style) and "a skill or instinctive ability to appreciate or make good use of something" (talent). Etymologically, the history of the linguistic form of FLAIR ['flar, 'fler] comes from old French, odor, from flairier to give off an odor, from late Latin flagrare, an alteration of Latin fragrare.

Part of the concept of FLAIR is for everybody to stay at the same place, to maximize interaction in an informal atmosphere and create a core group for furthering Laser Applications in Industry and Research as a cross-disciplinary science. To achieve all this, the financial support, the exhibition and the technical and scientific presentations from our industrial sponsors were highly appreciated. FLAIR-2007 has combined both, talent and style. We have ensured the opportunity to discover history and art in Florence and Tuscany and appreciated the financial support by

- Ente Cassa di Risparmio di Firenze
- Aerodyne Research, Inc., Billerica, MA, USA
- Alpes Lasers SA, Neuchâtel, Switzerland
- Daylight Solutions, Inc., Poway, CA, USA
- Hamamatsu Photonics, Japan
- Laser 2000 GmbH, Munich, Germany
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- Los Gatos Research, Inc., Mountain View, CA, USA
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- Picarro, Inc., Sunnyvale, CA, USA
- Scienca Industria Technologia, Pisa, Italy
- Siemens AG, Karlsruhe, Germany
- Gestione Silo S.r.l. Scandicci, Italy
- Southwest Sciences, Inc., Santa Fe, NM, USA
- TDL Sensors ltd., Manchester, UK
- Tiger Optics LLC, Warrington, PA, USA
- Vertilas GmbH, Munich, Germany

FLAIR 2009 will be held during September 7–11, 2009 in Garmisch-Partenkirchen, Germany in a resort in the Bavarian Alps.

July 2008 *Peter Werle*

 *Francesco D'Amato*