Prof. Livio Gianfrani

Livio Gianfrani was born on July 26, 1966. He received the degree in Physics (cum laude) on 1989 at the University of Naples and the PhD in Physics on 1993. In 1994 he got a stable position as researcher in Physics at the Environmental Sciences Faculty of the Second University of Naples. Since 1 November 2000, he is Associate Professor in Physics in the same University.
He is responsible of the Molecules and Precision Measurements Research Group at the Department of Mathematics and Physics.
Gianfrani teaches Classical Physics, Atomic and Molecular Quantum Physics.
Since 2005, he is the Coordinator of the International PhD Program in Novel Physics Methodologies for Environmental Research. He is member of the executive committee of the National Consortium of Universities for Matter Physics (CNISM), since 2008.

He has performed and, in many cases, headed a variety of experiments in collaboration with national and international Institutes and Universities. In particular, in the period 1996/1997, he was guest researcher at the National Institute of Standards and Technology (NIST) in Boulder - Colorado (USA), working in the Time & Frequency Division, in the group led by Dr. Leo Hollberg. In 2002, he was guest scientist at the Centre for Isotope Research (CIO), Dept. of Physics, University of Groningen (Holland), being awarded of a NATO-NWO (Nederlandse Organisatie voor Wetenschappelijk Onderzoek) fellowship for senior scientists. In the period January/February 2012, he was Visiting Professor at the Institute of Physics, Nicolaus Copernicus University, Torun, Poland. Finally, during the summer 2012, he has been visiting scientist at IMRA America Inc., Ann Arbor (Michigan, USA).

His scientific activity concerns atomic and molecular physics, both theoretically and experimentally. In particular, his main field of interest is precision laser spectroscopy for studies of fundamental physics and metrology, molecular quantum mechanics, collisional effects, widths and shapes of spectral lines.

He also takes care of ultra-sensitive laser spectroscopic methods for applications to environmental sciences, with a particular reference to fundamental aspects of metrological nature, regarding absolute determinations of molecular densities for atmospheric relevant gases and isotope ratio analysis calibrated with respect to international standards, by means of near- and mid-infrared semiconductor laser sources. On these subjects, he has led several research projects within National and European Programs (FP6, FP7, EURAMET).

Presently, he is scientist in charge of a REG (Researcher Excellence Grant) project in the framework of an EURAMET-EMRP network entitled "Implementing the New Kelvin" (SIB01-REG3 InK), in which the most important European metrological institutes are involved, such as Physikalisch-Technische Bundesanstalt, Laboratoire National de Métrologie ed d'Essais, National Physical Laboratory, and Istituto Nazionale per la Ricerca Metrologica.

Gianfrani is often engaged in the organisation of international conferences. He has been co-chair of the international workshop on “Optical Methods in Earth Sciences”, held in Bacoli, in March, 2001. Gianfrani was Chairman of two editions of the international workshop on “Stable Isotope Ratio Infrared Spectrometry”, held in Vienna in September 2004 (SIRIS 2004) and in Florence in September 2007 (SIRIS2007), and sponsored by the International Atomic Energy Agency and the European Science Foundation.

Since 2007, Gianfrani is member of the Scientific Committee of the International Conference on “Field Laser Applications in Industry and Research” (FLAIR), which is presently at its fourth edition.

In 2011, he was member of the Programme Committee of the CLEO/EUROPE Conference 2011, Section EE – Precision Metrology and Fundamental Limits. He is presently member of the Programme Committee of the conference CLEO Europe/IQEC 2013, Section "Precision Metrology and Frequency Combs".

Gianfrani has also experienced the editorial activity for scientific journals. In 2002, he acted as Guest Editor for a special issue of the Elsevier journal “Optics & Lasers in Engineering”, dealing with “Optical Methods in Earth Sciences”. In 2005, he was Guest Editor of a special issue of the journal entitled “Isotopes in Environmental and Health Studies” (Taylor & Francis), which was devoted to “Stable Isotope Ratio Infrared Spectrometry: New developments and applications”. Since many years, Gianfrani acts as referee for several peer-reviewed international journals (from IOP, OSA, AIP, APS, Springer and Elsevier) in the field of laser spectroscopy as well as atomic and molecular physics.

So far, Gianfrani has published more than 90 papers.

He has given several seminars at research institutes and universities and has contributed to a number of national and international conferences with lectures and talks, fifteen of which under invitation. Gianfrani frequently acts as opponent for PhD dissertations in National and European Universities.