



UNIVERSITÀ DEGLI STUDI DI PERUGIA
DIPARTIMENTO DI
FISICA E GEOLOGIA
Il Direttore

Perugia, 04/04/2014

AVVISO DI SEMINARIO GENERALE PER IL DIPARTIMENTO E PER IL DOTTORATO IN SCIENZA E TECNOLOGIA PER LA FISICA E LA GEOLOGIA – UNIPG

Il giorno **9 Aprile alle ore 15:00** presso l'aula A al primo piano della sede di via **A. Pascoli** snc (ex Dipart. Fisica) si terrà il seminario del Dr. Maurizio Ferrari dell'Istituto di Fotonica e Nanotecnologie del CNR. Oltre che ai dottorandi(*), l'invito a partecipare è cordialmente esteso a tutti quanti gli interessati.

Glass-Based Sub-Wavelength Photonic Structures

Maurizio Ferrari

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Abstract:

The scientific and technological activity involving the study and the development of materials at nanoscale and related converging technologies allow great progress in the conception, design and realization of systems and devices with improved performance. Fabrication of such structures, where light can be confined over nano or micro scale region is a fantastic challenge for nano-science based technologies. This field asks for interdisciplinary research aiming at understanding phenomena, mastering processes and developing advanced diagnostic techniques to manipulate and probe the properties of matter at the nanoscale, thus providing tremendous opportunities for the creation of novel materials and functionalities.

In this lecture some glass photonic systems, which combine light confinement and nanocomposite structure, mainly fabricated by sol-gel and rf-sputtering techniques, are presented, and in particular: (i) rare-earth activated glass ceramic waveguides; (ii) nano-micro spheres; (iii) opal photonic crystals; (iii) 1-D microcavities; (iv) spherical microresonators. Fabrication protocols, spectroscopic, optical and structural assessment, and applications including down-converters, strain sensing, bio-sensing, integrated optics, will be presented.

Prof. Maurizio Busso

Coordinatore del Dottorato

Prof. Caterina Petrillo

Direttore del Dipartimento

(*) N.B.: Si fa presente a tutti gli studenti del primo anno del Dottorato che la frequenza del seminario in oggetto è **obbligatoria.**

Short CV Maurizio Ferrari

Maurizio Ferrari (Trento 25-06-1955) received the Doctor in Physics degree from Trento University, Italy, in a.y. 1979/1980. Until 1989, he worked as a Researcher with the Laboratoire de Physico-Chimie des Matériaux Luminescents, Lyon, France, and in 1989 he moved to Trento as a Researcher with the CNR. He is currently a Senior Researcher with the Institute for Photonics and Nanotechnologies, CNR, where he is the Head of the CSMFO Lab. and is Head of the IFN-CNR Trento unit. He is co-author of more than 300 publications in international journals, of several book chapters and he is involved in numerous national and international projects concerning glass photonics. His bibliometric parameters are: h-index: 30 [27/02/2014]; Sum of the Times Cited: 3557; Average Citations per Article: 11.78; ResearcherID: H-3362-2011

Maurizio Ferrari is OSA, EOS and SIOF member. MF was elected in 2013 SPIE Fellow for achievements in synthesis and characterization of rare-earth doped optical materials. He has been member of several Scientific, Program and Steering Committees, and Chair of national and international conferences and workshops, member of evaluation committee at CNR and for other national and foreign research institutions, research director and jury member of several PhD theses. He is referee of several international scientific reviews in physics, photonics, and material science. He is AE of Optical Engineering for integrated optics, Editorial board member of Journal of Non-Crystalline Solids, Journal of Materials, Indian Journal of Materials Science, and Optical Materials. His main scientific area of research covers: properties, structure and processing of glasses, crystals and film for optical applications and photonics; energy transfer, optical and spectroscopic properties; integrated optics; nanocomposites materials and confined structures including photonic crystals, waveguides, microcavities, and microresonators.