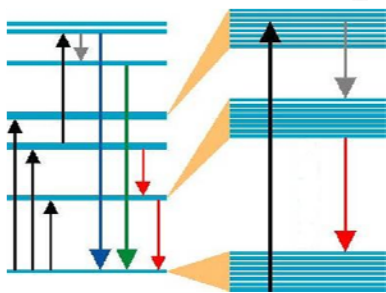


PRE 10



3rd International Workshop on

PHOTOLUMINESCENCE IN RARE EARTHS: PHOTONIC MATERIALS AND DEVICES

Florence, Italy, April 28-30, 2010

PROGRAM

Wednesday 28 April

4:30 p.m. – Registration opens at *Palagio di Parte Guelfa, Firenze*

5:00 – 7:00 p.m. **WELCOME PARTY** open to all participants and accompanying persons in the historic building of *Palagio di Parte Guelfa*, in the center of Florence.

Thursday 29 April

CNR RESEARCH AREA – Sesto Fiorentino

Registration desk opens at 08:45 a.m.

9:15 a.m.

Opening Remarks

Maurizio Ferrari, Giancarlo C. Righini, Setsuhisa Tanabe

Plenary Session

Session Chair: *Giancarlo C. Righini*, National Research Council (Italy)

9:30 am: New Developments in Solar Energy Utilization. (*Key Lecture*) *Renata Reisfeld*, Chemistry Institute, The Hebrew University, Jerusalem (Israel)

10:15 am: 50th Anniversary of the Laser: Main Keystones for Solid-State Laser Materials. (*Invited Paper*) *Georges Boulon*, Physico Chimie des Matériaux Luminescents (LPCML), Université Claude Bernard/Lyon (France) and Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Tohoku University, Sendai (Japan)

Coffee Break.....10:45-11:15 am

SESSION 1

Conference Room.....Thurs. 11:15 am to 12:45 pm

Wavelength conversion for efficient photovoltaic systems

Session Chair: *Setsuhisa Tanabe*, Kyoto University (Japan)

11:15 am: **Downconversion with lanthanides for photovoltaics.** (*Invited Paper*) *Andries Meijerink*, Condensed Matter and Interfaces, Debye Institute for NanoMaterials Science Utrecht University (The Netherlands)

11:45 am: **Broadband spectral modification based on energy transfer of rare earth ions.** (*Invited Paper*) *Jianrong Qiu^{1,2}, Jiajia Zhou² and Song Ye²*; ¹Institute of Optical Communication Materials, South China University of Technology, Guangzhou (China); ²Department of Materials Science and Technology, Zhejiang University, Hangzhou (China)

12:15 am: **Enhancing the performance of photovoltaic devices via rare-earth-containing luminescent materials.** *B.S. Richards¹, B.C. Rowan¹, D. Ross¹, E. Klampaftis¹, L.R. Wilson¹, N. Robertson², A.C. Jones.²* ¹School of Engineering & Physical Sciences, Heriot-Watt University, Edinburgh (UK); ² School of Chemistry, University of Edinburgh (UK).....[PRE10_73]

12:30 am: **Optical properties of Ln³⁺ ions in heavily doped stoichiometric tetrphosphate nanocrystalline phosphors,** *W. Strek, R. Wiglusz, L. Marciniak, A. Lukowiak, D. Hreniak*, Institute of Low Temperature and Structure Research, Polish Academy of Sciences, Wroclaw, (Poland).....[PRE10_91]

Lunch Break.....1:00 to 2:00 pm

SESSION 2

Conference Room.....Thurs. 2:00 to 3:30 pm

Synthesis and application of rare earth doped nanoparticles

Session Chair: *John Ballato*, COMSET, Clemson University (USA)

2:00 pm: **Synthesis, Luminescence and Scintillation of Rare Earth Doped Fluoride Nanoparticles** *L.G. Jacobssohn¹, K.B. Sprinkle¹, C.J. Kucera¹, T.L. James¹, S.A. Roberts¹, T.A. DeVol² and J.*

Ballato¹. ¹COMSET, and School of Materials Science and Engineering, Clemson University (USA); ²Department of Environmental Engineering and Earth Sciences, Clemson University (USA).....[PRE10_18]

2:15 pm: **Nucleation of PbS quantum dots in glasses controlled by rare-earth ions**, **Sangmin Shim¹, Woon Jin Chung², Yong Kon Kwon¹ and Jong Heo¹**. ¹ Department of Materials Science Engineering and Center for Information Materials, POSTECH, Pohang, (Korea); ²Division of Advanced Materials Engineering, Kongju National University, (Korea).....[PRE10_67]

2:30 pm: **Investigation of the luminescence properties of SnO₂: Eu³⁺ nano particle prepared by hydrothermal route**. **Tran Ngoc Khiem¹, Pham Thanh Huy^{1,2}, Nguyen Duc Chien^{1,3}, Maurizio Ferrari⁴, Alessandro Chiasera⁴**; ¹ITIMS, Hanoi University of Technology (Vietnam); ²HAST, Hanoi University of Technology (Vietnam); ³IEP, Hanoi University of Technology (Vietnam); ⁴CNR-IFN, Institute of Photonics and Nanotechnology, CSMFO Group, Trento, (Italy).....[PRE10_72]

2:45 pm: **Rare Earths Fluorides and Oxifluorides in inverse Opals**. **M.M. Lezhnina, U. Kynast**, University of Applied Sciences Muenster, Department of Chemical Engineering /Applied Materials Sciences, Steinfurt, (Germany).....[PRE10_86]

3:00 pm: **Up-conversion in rare earth-doped core-shell nanoparticles for biomedical applications**. **Ricardo Réfega, Luís M. Fortes, M. Clara Gonçalves and Rui M. Almeida**, Dep.to de Engenharia de Materiais, Instituto Superior Técnico/TU Lisbon (Portugal).....[PRE10_48]

3:15 pm: **RE doped oxy-fluoride nano-glass-ceramics containing LaF₃**. **A. de Pablos-Martín, F. Muñoz, M.J. Pascual, A. Durán**, Instituto de Cerámica y Vidrio - CSIC, Madrid (Spain)..[PRE10_79]

Coffee Break.....3:30-4:00 pm

POSTER SESSION I.....Thurs. 4:00-5:00 pm

SESSION 3

Conference Room.....Thurs. 5:00 to 6:15 pm

Rare earth doped ceramic and glass-ceramic materials

Session Chair: **Jong Heo**, POSTECH (Korea)

5:00 pm: **Rare earth ions segregation in YAG optical ceramics**. **Wei Zhao¹, Sergiou Anghel¹, David Amans¹, Yun Shi², Thierry Epicier³, Valery Chani⁴, Akira Yoshikawa^{4,5}, Georges Boulon^{1,4}**; ¹LPCML, Université Claude Bernard/Lyon 1 (France); ²Shanghai Institute of Ceramics, CAS (China); ³MATEIS, Université de Lyon (France); ⁴IMRAM, Tohoku University, Sendai, (Japan); ⁵New Industry Creation Hatchery Center, Tohoku University, Sendai, (Japan).....[PRE10_10]

5:15 pm: **Near infrared downconversion in Pr³⁺-Yb³⁺ codoped oxyfluoride glass ceramics** **Yumiko Katayama, Setsuhisa Tanabe**; Graduate School of Human and Environmental Studies, Kyoto University (Japan).....[PRE10_35]

5:30 pm: **Analysis of Energy Transfer Mechanism in Ce³⁺-Yb³⁺ Co-doped YAG Ceramics**, **Jumpei Ueda, Setsuhisa Tanabe^{1,2}**; ¹Graduate School of Human and Environmental Studies, Kyoto University (Japan); ²JST-PRESTO (Japan).....[PRE10_36]

5:45 pm: **Yb³⁺ doped CaF₂ transparent ceramics**, **M.Mortier¹, P. Aubry¹, A. Lyberis¹, P. Gredin¹, D. Vivien¹, G. Patriarche²**; ¹LCMCP, CNRS - Chimie ParisTech Paris (France); ²LPN, CNRS, Marcoussis (France).....[PRE10_39]

6:00 pm: **Tb³⁺/Yb³⁺ co-activated silica-hafnia glass ceramic waveguides**, **G. Alombert-Goget¹, C. Armellini^{1,2}, S. Berneschi³, A. Chiappini^{1*}, A. Chiasera¹, M. Ferrari¹, S. Guddala^{1,4,5}, E. Moser⁴, S. Pelli³, D. N. Rao⁵, G.C. Righini³**; ¹CNR-IFN, CSMFO Lab., Trento (Italy); ²Fondazione Bruno Kessler, Trento (Italy); ³CNR-IFAC, MDF Lab, Sesto Fiorentino (Italy); ⁴Dipartimento di Fisica, Università di Trento (Italy); ⁵School of Physics, University of Hyderabad (India).....[PRE10_87]

SESSION 4

Room: Aula 2.....Thurs. 11:15 am to 1:00 pm

Rare earth doped materials and applications

Session Chair: *Animesh Jha*, University of Leeds (UK)

11:15 am: **Writing Strontium Barium Niobate nanocrystals lines in glass matrix by laser irradiation.** *P. Haro-González¹, I.R. Martín¹, L. L. Martín¹, Alberto Hernández Creus²*; ¹Dep. de Física Fundamental, Electrónica y Sistemas, Universidad de La Laguna, Tenerife (Spain), ²Dep. de Química Física, Universidad de La Laguna, Tenerife (Spain).....[PRE10_46]

11:30 am: **Laser cooling of solids to cryogenic temperatures.** *Alberto Di Lieto¹, Mauro Tonelli¹, Denis V. Seletskiy², Seth D. Melgaard², Mansoor Sheik-Bahae²*; ¹NEST-CNR, Dipartimento di Fisica, Università di Pisa (Italy); ²University of New Mexico, Physics and Astronomy Dept., Albuquerque, USA.....[PRE10_53]

11:45 am: **Comparison of laser characteristics of Yb-doped fluorinated crystals: Yb:CaF₂ and heavily doped Yb:YLF.** *Angela Pirri, Daniele Alderighi, Guido Toci, Matteo Vannini*; IFAC-CNR Istituto di Fisica Applicata “Nello Carrara”, Sesto Fiorentino (Italy).....[PRE10_70]

12:00 pm: **Novel Er³⁺ perfluorinated complexes and hybrid materials for broadband sensitized near infrared emission.** (*Invited Paper*) *Francesco Meinardi, Agnieszka Mech, Angelo Monguzzi and Riccardo Tubino*, Departement of Materials Science, University of Milano-Bicocca (Italy)

12:30 pm: **Rare earth doped eutectic materials for photonic applications,** (*Invited Paper*) *R. Balda^{1,2}, R.I. Merino³, J.I. Peña³, V.M. Orea³ and J. Fernández^{1,2}*. ¹Departamento Física Aplicada I, Escuela Técnica Superior de Ingeniería, Bilbao (Spain); ²Centro de Física de Materiales CSIC-UPV/EHU and Donostia International Physics Center, San Sebastián (Spain); ³Instituto de Ciencia de Materiales de Aragón, Universidad de Zaragoza (Spain)

Lunch Break.....1:00 to 2:00 pm

SESSION 5

Room: Aula 2.....Thurs. 2:00 to 3:30 pm

White light generation I

Session Chair: *Maurizio Ferrari*, IFN CNR, Trento (Italy)

2:00 pm: **Comments on 5d levels of rare-earth ions in oxynitride/nitride phosphors.** (*Invited Paper*) *Masayoshi Mikami, Naoto Kijima*, Mitsubishi Chemical Group Science and Technology Research Center, Yokohama, (Japan)

2:30 pm: **Characterization of Tb-doped soda-zinc-aluminosilicate glasses for white light generation.** *Adolfo Speghini¹, Simone Berneschi², Massimo Brenci², Marco Bettinelli¹, Ulises Caldino³, Giancarlo C. Righini²*. ¹Laboratorio di Chimica dello Stato Solido, Università di Verona & INSTM (Italy); ²MDF Lab, Nello Carrara Institute of Applied Physics, CNR, Sesto Fiorentino (Italy); ³Dep.to de Física, Universidad Autonoma Metropolitana, Iztapalapa (Mexico).....[PRE10_19]

2:45 pm: **Photoluminescence of Polymer-derived SiOC and SiBOC thin films.** *Aylin Karakuscu¹, Romain Guider², Lorenzo Pavesi² and Gian Domenico Sorarù¹*; ¹Materials Engineering Department, University of Trento (Italy), ² Nanoscience Laboratory, Department of Physics, University of Trento (Italy).....[PRE10_59]

3:00 pm: **Rare earth doped sulfides as colour conversion phosphors: an overview and new candidates.** *Philippe F. Smet, Katleen Korthout, Anthony Parmentier, Nursen Avci and Dirk Poelman*; LumiLab, Department of Solid State Sciences, Ghent University (Belgium).....[PRE10_65]

3:15 pm: **Europium doped thiosilicate phosphors of the alkaline earth metals Mg, Ca, Sr and Ba: structure and luminescence.** *Anthony B. Parmentier, Philippe F. Smet and Dirk Poelman*, LumiLab, Department of Solid State Sciences, Ghent University (Belgium).....[PRE10_66]

Coffee Break.....3:30-4:00 pm

POSTER SESSION I.....Thurs. 4:00 – 5:00 pm

SESSION 6

Room: Aula 2.....Thurs. 5:00 to 6:00 pm

Rare earth doped optical fibers & fiber lasers I

Session Chair: *Jean-Luc Adam*, Université de Rennes 1 (France)

5:00 pm: **Rare earth ions in fibers.** (*Invited Paper*) Anne-Marie Jurduc, Alice Berthelot, Romain Peretti, Antoine Al Choueiry, Laboratoire de Physico Chimie des Matériaux Luminescents (LPCML), Université de Lyon, Université Lyon 1, CNRS, Lyon (France)

5:30 pm : **Erbium doped tellurite glasses and optical fibres: targeting visible and C-band emission.** Daniel Milanese¹, Joris Lousteau¹, Stefania Barbero¹, Monica Ferraris¹, Guido Perrone¹, Massimo Olivero¹, Alessandro Chiasera², Maurizio Ferrari², ¹ Politecnico di Torino, Dipartimento di Scienza dei Materiali ed Ingegneria Chimica, Torino (Italy), ² CNR-IFN, Istituto di Fotonica e Nanotecnologie, CSMFO Lab, Trento, (Italy)..... [PRE10_81]

5:45 pm: **Improvement of cladding-pumped microstructured optical fiber laser performance via long period grating.** Luciano Mescia¹, Francesco Prudenzano², Tommaso Palmisano², Michele Surico², ¹ DEE-Dipartimento di Elettrotecnica ed Elettronica, Politecnico di Bari, Bari, (Italy), ² DIASS-Dipartimento di Ingegneria dell'Ambiente e per lo Sviluppo Sostenibile, Politecnico di Bari, Taranto, (Italy)[PRE10_13]

POSTER SESSION I

Room: *Foyer - in front of Conference Room*.....Thurs. 4:00 - 5:00 pm

Conference participants are invited to attend the poster session to network with colleagues and view the poster papers. Authors of poster papers will be present to answer questions concerning their papers. Poster Authors must set up their poster before 11:00 a.m. of Thursday 29 April and remove it before 7:00 p.m. of the same day.

Evaluating upconversion materials developed to improve the efficiency of solar cells. *Meisong Liao, Guanshi Qin, Xin Yan, Mark Hughes, Takenobu Suzuki, Yasutake Ohishi*; Research Center for Advanced Photon Technology, Toyota Technological Institute, Nagoya (Japan).....[PRE10-7]

Tunable passively mode-locked fiber laser with carbon nanotube films and its application to supercontinuum generation in tellurite microstructured fibers. *Guanshi Qin, Meisong Liao, Xin Yan, Takenobu Suzuki, Yasutake Ohishi*; Toyota Technological Institute, Nagoya (Japan).....[PRE10-12]

Sub-Micron Grained Highly Transparent Er-doped Y₂O₃ Ceramics: Synthesis, Processing, and Properties. *K. Serivalsatit, L. Burka, B. Kokuoz, B. Yasgan-Kokuoz, M. Kennedy, J. Ballato*. Charles H. Townes Optical Science and Engineering Laboratories, COMSET, and School of Materials Science and Engineering, Clemson University (USA).....[PRE10-15]

Designer Emission Spectra through Tailored Energy Transfer in Nanoparticle-Doped Silica Preforms. *Courtney J. Kucera¹, Tiffany L. James¹, Baris Kokuoz¹, Dale Edmondson¹, David Griese², Michael Miller², Andrew James¹, William Baker², John Ballato¹*. ¹Charles H. Townes Optical Science and Engineering Laboratories, COMSET, and School for Materials Science and

- Engineering, Clemson University (USA); ²Charles H. Townes Optical Science and Engineering Laboratories, Department of Physics, Furman University, Greenville (USA).....[PRE10-17]
- Preparation of Eu³⁺-doped Ta₂O₅ phosphor particle by sol-gel method.** *Tomoe Sanada¹, Yasutaka Wakai¹, Hiroshi Nakashita¹, Chihiro Yogi¹, Shingo Ikeda¹, Noriyuki Wada², Kazuo Kojima¹.* Department of Applied Chemistry, Ritsumeikan University (Japan); ²Department of Materials Science and Engineering, Suzuka National College of Technology (Japan).....[PRE10-22]
- Observation of Eu²⁺ under ion exchange reaction of sodium beta alumina with molten Eu³⁺ salts in an inert gas atmosphere.** *Tsuyoshi Arakawa, Takanori Morimoto.* Department of Biological and Environmental Chemistry, Kinki University, Fukuoka, (Japan).....[PRE10-24]
- Photoluminescence of rare earth-protein-surface-active agents system and its application for the determination of protein.** *Yuya Konishi, Shoichiro Takoshima, Tsuyoshi Arakawa.* Department of Biological and Environmental Chemistry, Kinki University, Fukuoka (Japan)..... [PRE10-25]
- Behaviour of Eu³⁺ doped Mo-rich glass-ceramic and CaMoO₄ ceramic under Ar and Pb implantation.** *Clément Mendoza¹, Dominique de Ligny¹, Gérard Panczer¹, Sylvain Peugeot², Isabelle Bardez-Giboire² and Sophie Schuller².* ¹ LPCML - Laboratoire de Physico-chimie des matériaux luminescents, Université de Lyon (France); ²DEN/DTCD/SECM, CEA Marcoule, Bagnols-sur-Cèze (France).....[PRE10-29]
- New Photoluminescent Lanthanide Phosphonates.** *Ferdinando Costantino, Pier Luigi Gentili, Fabio Evangelisti.* Dipartimento di Chimica, Università di Perugia (Italy).....[PRE10-37]
- Up-conversion Ho³⁺ doped materials to improve the efficiency of silicon solar cells.** *C. Pérez-Rodríguez, F. Lahoz, S. E. Hernández, P. Haro-González.* Dpto. Física Fundamental y Experimental, Electrónica y Sistemas, Universidad de La Laguna, Tenerife (Spain)[PRE10-44]
- Preparation and optical characterization of SiO₂/ZrO₂: Eu fibre materials and possible applications.** *V. Kiisk, T. Tätte, K. Utt, I. Sildos.* Institute of Physics, University of Tartu (Estonia)..[PRE10-51]
- Organo-lanthanide complexes as enhancer for silicon-based solar cells.** *L. Bellotto, S. Polizzi, P. Riello, A. Benedetti, I. Freris.* Dipartimento di Chimica Fisica, Università Ca' Foscari di Venezia (Italy)[PRE10-52]
- Local devitrification of Dy³⁺ doped Ba₂TiSi₂O₈ glass by laser irradiation.** *L. L. Martín¹, P. Haro-González¹, J. M. Cáceres², N.E. Capuj³, I. R. Martín¹.* *MALTA Consolider Team; ¹Depto. Física Fundamental, Electrónica y Sistemas; ²Depto. Edafología y geología; ³Depto. Física Básica, Universidad de La Laguna, Tenerife (Spain)..... [PRE10-58]
- Up- and down conversion in sol-gel derived Yb³⁺-Pr³⁺ co-doped SiO₂-LaF₃ nano-glass-ceramics.** *J.J. Velázquez¹, A.C. Yanes², J. del-Castillo², J. Méndez-Ramos¹, V.D. Rodríguez¹.* ¹Departamento de Física Fundamental y Experimental, Electrónica y Sistemas. Universidad de La Laguna, Tenerife (Spain); ²Dep.to de Física Básica. Universidad de La Laguna, Tenerife (Spain).....[PRE10-61]
- Cooperative energy transfer process in Yb³⁺-Tb³⁺ nanostructured sol-gel SiO₂-LaF₃ glass-ceramics.** *J.J. Velázquez¹, A.C. Yanes², J. del-Castillo², J. Méndez-Ramos¹, V.D. Rodríguez¹.* ¹Dep.to de Física Fundamental y Experimental, Electrónica y Sistemas. Universidad de La Laguna, Tenerife (Spain); ²Dep.to de Física Básica, Universidad de La Laguna, Tenerife (Spain)....[PRE10-62]
- Synthesis and characterization of colloidal zirconia doped with Eu³⁺ and Tb³⁺.** *M. Pedroni¹, F. Piccinelli¹, M. Giarola², G. Mariotto², C. Cannas³, M. Bettinelli¹, A. Speghini¹.* ¹Laboratorio di Chimica dello Stato Solido, Università di Verona & INSTM (Italy); ²Dipartimento di Informatica, Università di Verona (Italy); ³Dipartimento di Scienze Chimiche, Università di Cagliari (Italy)..... [PRE10-68]
- Different approaches for the fabrication of transparent Yb:YAG ceramics.** *Marina Serantoni¹, Anna Luisa Costa¹, Laura Esposito¹, Andreana Piancastelli¹.* ¹ISTEC-CNR, Istituto di Scienza e Tecnologia dei materiali Ceramici, Faenza (Italy).....[PRE10-71]
- Structural and photoluminescence properties of Nd³⁺- activated nanostructured titanium oxide films produced by RF sputtering.** *R. Bartali¹, G. Alombert Goget², G. Gottardi¹, S. Guddala^{2,3,4}, I.*

Luciu^{1,3}, V. Micheli¹, J. Perrière⁵, G. Pucker¹, G. Speranza¹, M. Ferrari² and N. Laidani¹.
¹Fondazione Bruno Kessler, Centro Materiali e Microsistemi, Trento (Italy); ²CNR-IFN, CSMFO Lab., Trento (Italy); ³Dipartimento di Fisica, Università di Trento (Italy); ⁴School of Physics, University of Hyderabad (India); ⁵INSP, Université Paris 6, Paris (France)..... [PRE10-74]

Synthesis of Bredigite related silicate for blue - green emission phosphor. Tadashi Ishigaki¹, Satomi Seki², Kazuyoshi Uematsu³, Kenji Toda^{1,2} and Mineo Sato^{1,3}. ¹Center for Transdisciplinary Research, Niigata University (Japan); ²Graduate School of Science and Technology, Niigata University (Japan); ³Department of Chemistry and Chemical Engineering, Niigata University (Japan).....[PRE10-77]

Bi²⁺-doped materials for white light LED. Mingying Peng, Ning Da, Sebastian Krolkowski, and Lothar Wondraczek. Department of Materials Science-WW3, University of Erlangen-Nürnberg (Germany).....[PRE10-82]

Glass-filled capillary waveguides and photonic crystal fibers. N. Da¹, M. Schmidt², N. Granzow², P. St.J. Russell², and L. Wondraczek¹. ¹Chair of Glass and Ceramics, Department of Materials Science, University of Erlangen- Nürnberg (Germany); ²Max Planck Institute for the Science of Light, Erlangen, (Germany).....[PRE10-84]

X-ray and photoluminescence of Sm²⁺ in Fluorochlorozirconate Glass Ceramics. Cyril Koughia,¹ Andy Edgar², Christopher R. Varoy,² Go Okada,¹ Heinz von Seggern,³ George Belev,¹ Chang-Yong Ki,⁴ Ramaswami Sammynaiken,⁵ Safa Kasap¹. ¹Department of Electrical and Computer Engineering, University of Saskatchewan, Saskatoon (Canada); ² School of Chemical and Physical Sciences and MacDiarmid Institute, Victoria University of Wellington (New Zealand); ³Institute of Materials Science, Technische Universität Darmstadt (Germany); ⁴Canadian Light Source Inc., University of Saskatchewan, Saskatoon (Canada); ⁵Saskatchewan Structural Sciences Centre, University of Saskatchewan, Saskatoon, (Canada)..... [PRE10-88]

Rare Earth Doped Luminescent Nanoclays. Marina Lezhnina^{1,2}, Michael Bentlage¹, Peter Klauth³, Ulrich Kynast.¹ ¹Department of Chemical Engineering, Applied Materials Sciences, University of Applied Sciences Muenster, Steinfurt (Germany). ²Mari State Technical University, Department of Physics, Yoshkar-Ola (Russia); ³INano, Hochschule Niederrhein, Krefeld (Germany).....[PRE10-94]

Friday 30 April

SESSION 7

Conference Room.....Fri. 9:00 to 10:30 am

White light generation II

Session Chair: **Masayoshi Mikami**, Mitsubishi Chemical Group (Japan)

9:00 am: **(Oxo)nitridosilicate Phosphor Materials - A Synthetic and Structural Point of View.** (Invited Paper) **Martin Zeuner, Wolfgang Schnick**, Department of Chemistry, University of Munich (LMU), Munich (Germany)

9:30 am: **Inorganic phosphors doped with rare earth ions for innovative lighting and other applications.** (Invited Paper) **P. Boutinaud, L. Sarakha, R. Mahiou**, Clermont Université, Clermont-Ferrand (France) and Laboratoire des Matériaux Inorganiques, Aubière (France)

10 :00 am: **Fabrication of glasses dispersed yellow oxynitride phosphor for white light-emitting diodes.** **Hiroyo Segawa, Satoshi Ogata, Naoto Hirosaki and Satoru Inoue**, National Institute for Materials Science, Tsukuba, (Japan).....[PRE10_43]

10:15 am: **Photoluminescence from Tb-doped 1-D triple microcavity for white light generation.** **Yigang Li, Rui M. Almeida**, Instituto Superior Técnico / TU Lisbon (Portugal).....[PRE10_20]

Coffee Break.....Fri. 10:30-11:00 am

SESSION 8

Conference Room.....Fri. 11:00 am to 1:00 pm

Rare earth doped active media and lasers I

Session Chair: *Joaquin Fernandez*, University of the Basque Country (Spain)

11:00 am: **The coupling between intrinsic defects and rare-earth ions in inorganic crystalline scintillators.** (*Invited Paper*) *Anna Vedda*, Department of Materials Science, University of Milano-Bicocca (Italy)

11:30 am: **Development of Ceramic Laser Material with Extremely Low Optical Loss.** (*Invited Paper*) *Akio Ikesue, Yan Lin Aung*, World-Lab. Co., Ltd., Atsutaku Nagoya (Japan)

12:00 pm: **Spectral characterization of Yb-doped silica layers for high power laser applications.** *David Eger¹, Gil Atar¹, Ariel Bruner¹, Bruno Sfez¹ and Irit Juwiler²*. ¹Electro-optics Division, Soreq NRC, Yavne (Israel); ²Department of Electrical and Electronics Engineering, Sami Shamoon College of Engineering, Ashdod (Israel).....[PRE10_05]

12:15 pm: **Characterization of Yb:YAG ceramics as laser media.** *Daniele Alderighi¹, Angela Pirri¹, Guido Toci¹ and Matteo Vannini¹ Laura Esposito², Anna Luisa Costa², Marina Serantoni², Andreana Piancastelli²*. ¹IFAC-CNR Istituto di Fisica Applicata "Carrara", Sesto Fiorentino (Italy), ²ISTEC-CNR, Istituto di Scienza e Tecnologia dei materiali Ceramici, Faenza (Italy).....[PRE10_69]

12:30 pm: **Bimodal Laser using Er:ZBLALiP Whispering Gallery Mode Resonator.** *Patrice Féron¹, Lei Xiao^{1,2}, Stéphane Trebaol¹, Yann G. Boucher^{1,3}, ZhiPing Cai², Michel Mortier⁴ and Yannick Dumeige¹*, ¹FOTON-ENSSAT - Université de Rennes 1, Lannion (France); ²Department of Electronic Engineering, Xiamen University (China); ³ENIB/RESO, Brest (France); ⁴LCAES, ENSCP, Paris (France).....[PRE10_63]

12:45 pm: **Emission sensitization and population saturation of trivalent erbium in organolanthanides.** *Francesco Quochi¹, Flavia Artizzu², Michele Saba¹, Fabrizio Cordella³, Maria Laura Mercuri², Paola Deplano², Maria Antonietta Loi³, Andrea Mura¹ and Giovanni Bongiovanni¹*. ¹Dipartimento di Fisica, Università di Cagliari e SLACS-INFN/CNR (Italy); ²Dipartimento di Chimica Inorganica e Analitica, Università di Cagliari (Italy); ³Zernike Institute for Advanced Materials, University of Groningen (The Netherlands).....[PRE10_28]

Lunch Break.....Fri. 1:00 to 2:00 pm

SESSION 9

Conference Room.....Fri. 2:00 to 3:30 pm

Rare earth doped optical fibers & fiber lasers II

Session Chair: *Rui M. Almeida*, Instituto Superior Tecnico, TU Lisbon (Portugal)

2:00 pm: **Photodarkening and the next generation of high-power fiber lasers.** (*Invited Paper*) *S. Taccheo*, Swansea University (UK)

2:30 pm: **Photonic crystal fiber multi wavelength laser.** *F. Prudenzano¹, L. Mescia², L. Allegretti¹, V. Moizan³, V. Nazabal³, F. Smektala⁴*. ¹DIASS, Politecnico di Bari (Italy); ²DEE, Politecnico di Bari (Italy); ³Sciences Chimiques de Rennes, Université de Rennes 1 (France); ⁴ICB, CNRS-Université de Bourgogne, Dijon (France).....[PRE10_14]

2:45 pm: **Development of optimized Erbium-doped photonic crystal fiber lasers,** *J.A. Sánchez Martín¹, J.M. Alvarez¹, M.A. Rebolledo¹, J.A. Vallés¹, A. Díez², M.V. Andrés²*. ¹Departamento de Física Aplicada, Universidad de Zaragoza (Spain); ²Departamento de Física Aplicada y Electromagnetismo, Universidad de Valencia (Spain).....[PRE10_32]

3:00 pm: **Yb-doped Photonic Crystal Fibers for the Scribing of Photovoltaic Modules,** *A. Cucinotta, S. Selleri*, Information Engineering Department, University of Parma (Italy)....[PRE10_40]

3:15 pm: **Green up-conversion in an Yb³⁺-Tb³⁺ doped tellurite fibre**, *V. Scarnera¹, B. Richards¹, G. Jose¹, A. Jha¹, C. Stacey²*. ¹Institute for Materials Research, The University of Leeds (UK); ²BAE SYSTEMS, Advanced Technology Centre, Filton (UK).....[PRE10_89]

Coffee Break.....Fri. 3:30 - 4:00 pm

POSTER SESSION II.....Fri. 4:00-5:00 pm

SESSION 10

Conference Room.....Fri. 5:00 to 6:15 pm

Rare earth doped active media and lasers II

Session Chair: *Akio Ikesue*, World Lab. Co., Ltd. (Japan)

5:00 pm: **Luminescence of rare earth doped chalcogenide glasses and their applications.** (*Invited Paper*) *V. Nazabal¹, F. Charpentier¹, M.-L. Anne³, P. Camy², J.-L. Doualan², H. Lhermite³, J. Troles¹, P. Němec⁴, A.-M. Jurdyc⁵, B. Bureau¹, J.-L. Adam¹*. ¹Sciences chimiques de Rennes, Université de Rennes 1 (France); ²CIMAP, CEA-CNRS-ENSICAen, Université de Caen (France); ³IETR -microelectronic, Université Rennes 1 (France); ⁴Faculty of Chemical Technology, University of Pardubice (Czech Republic); ⁵LPCML, Université Claude Bernard-Lyon 1 (France)

5:30 pm: **Study of an optimised bidirectional pump scheme for fs-laser written Yb/Er-codoped integrated waveguides.** *J.A. Vallés¹, A. Ruiz de la Cruz², M. Á. Rebolledo¹, A. Ferrer², V. Berdejo¹ and J. Solís²*. ¹Departamento de Física Aplicada, Universidad de Zaragoza (Spain) ²Laser Processing Group, Instituto de Óptica-CSIC, Madrid (Spain).....[PRE10_45]

5:45 pm: **Pulsed Laser Deposition of Rare-earth Doped Glasses for Optical Integration with Semiconductor Pump Sources.** *Animesh Jha¹, Mehrdad Irannejad¹, Zhan Zhao¹, Gin Jose¹, Craig Evans², Zoran Ikonc², Paul Steenson², Paul Harrison², Qi Jiang³, Kejia J Zhou³, Ziyang Y Zhang³, Richard A Hogg³*. ¹Institute for Material Research, School of Process, Environmental and Materials Engineering; ²Institute of Microwave and Photonics, School of Electronic and Electrical Engineering, University of Leeds (UK); ³School of Electronic and Electrical Engineering, University of Sheffield (UK).....[PRE10_78]

6:00 pm: **Erbium-doped quinolines for integrated photonic active devices.** *Stefano Penna¹, Andrea Reale¹, Giorgio Maria Tosi Beleffi², Satoshi Shinada³, Masashi Nakao³, Naoya Wada³, Paulo Sergio de Brito Andre⁴, Antonio Luis Jesus Teixeira⁴*. ¹Dip. Ingegneria Elettronica, Università di Roma Tor Vergata (Italy); ²Ist. Sup. Comunicazioni (ISCOM), Ministero dello Sviluppo Economico, Roma (Italy); ³National Institute for ICT (NICT), Tokyo (Japan); ⁴Istituto de Telecomunicacoes, Universidade De Aveiro (Portugal).....[PRE10_85]

SESSION 11

Room: Aula 2.....Fri. 11:00 am to 1:00 pm

Spectroscopy and characterization

Session Chair: *Marco Bettinelli*, Verona University (Italy)

11:00 am: **Thermally-induced ionization of the Ce³⁺ excited state in SrHfO₃ microcrystalline phosphor**, *V. Jary¹, E. Mihokova^{1,2}, M. Nikl¹, P. Bohacek¹, A. Lauria² and A. Vedda²*. ¹Institute of Physics AS CR, Prague (Czech Republic); ²Department of Materials Science, University of Milano-Bicocca (Italy).....[PRE10_41]

11:15 am: **Photoluminescence properties of nanocrystalline La_2TeO_6 : $\text{Eu}^{3+}/\text{Tb}^{3+}$ phosphors prepared by Pechini sol-gel method.** *Jaime Llanos, Rodrigo del Campo, Rodrigo Castillo.* Departamento de Química, Universidad Católica del Norte, Antofagasta (Chile).....[PRE10_50]

11:30 am: **Luminescence improvement of materials consisting of nanocrystalline metal particles and Tb(III) ions entrapped in oxide xerogel,** *Andrzej M. Klonkowski¹, H.-Jürgen Meyer², Mariusz Kubus¹ and Beata Lipowska-Lastowka¹.* ¹Faculty of Chemistry, University of Gdansk (Poland); ² Institute of Inorganic Chemistry, University of Tübingen (Germany).....[PRE10_80]

11:45 am: **First-principles calculations of $4f^2$ - $4f5d$ transition spectra of Pr^{3+} in fluoride crystals,** *Kazuyoshi Ogasawara, Kazuki Higashiura.* Department of Chemistry, Kwansei Gakuin University, Sanda (Japan).....[PRE10_34]

12:00 pm: **Photon Trapping Effects in Rare-Earth Doped Glasses: Selected Examples, (Invited Paper)** *Safa Kasap, Cyril Koughia.* University of Saskatchewan, Saskatoon, Canada

12:30 pm: **Development of novel Fluoride and Oxide scintillators, and 2 dimensional imaging test using them, (Invited Paper)** *A. Yoshikawa^{1,5}, T. Yanagida¹, Y. Yokota¹, K. Kamada¹, K. Fukuda^{1,2}, N. Kawaguchi^{1,2}, G. Boulon³, M. Nikl⁴.* ¹Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai (Japan); ²R&D center, Tokuyama Corporation, Tokyo (Japan); ³LPCML, Université Claude Bernard/Lyon 1 (France); ⁴Institute of Physics AS CR, Prague (Czech Republic); ⁵New Industry Creation Hatchery Center, Tohoku University, Sendai, (Japan)

Lunch Break.....Fri. 1:00 to 2:00 pm

SESSION 12

Room: Aula 2.....Fri. 2:00 to 3:30 pm

Rare earth doped crystalline materials

Session Chair: *Michel Mortier*, LCMCP, CNRS - Chimie ParisTech (France)

2:00 pm: **Spectroscopic characterization of various Eu^{2+} sites in Ca_2SiO_4 : Eu^{2+} and Ba_2SiO_4 : Eu^{2+} ,** *J. Barzowska¹, A. Baran¹, R. S. Meltzer², M. Grinberg¹.* ¹Institute of Experimental Physics, University of Gdańsk (Poland); ²Department of Physics and Astronomy, University of Georgia, Athens, (Greece).....[PRE10_31]

2:15 pm: **Spectroscopy of the 3PJ manifolds in Pr^{3+} doped fluoride single crystals,** *Daniela Parisi, Stefano Veronesi, R. Faoro, Mauro Tonelli.* NEST CNR-INFM and Dipartimento di Fisica, Università di Pisa (Italy).....[PRE10_42]

2:30 pm: **Synthesis of macroporous $\text{Ce}^{3+}:\text{Y}_3\text{Al}_5\text{O}_{12}$ crystal via sol-gel route accompanied by phase separation and its application to scattering-based hole burning,** *Koji Iwata¹, Koji Fujita^{1,2}, Shunsuke Murai¹, Katsuhisa Tanaka¹.* ¹Department of Material Chemistry, Kyoto University (Japan); ²PRESTO Japan Science and Technology Agency (JST), Saitama (Japan).....[PRE10_47]

2:45 pm: **Emission dynamics of Pr^{3+} in $\text{Ba}_2\text{NaNb}_5\text{O}_{15}$ crystals,** *R. Faoro¹, F. Moglia¹, M. Tonelli¹, G. Calestani², F. Mezzadri² and E. Cavalli².* ¹NEST, CNR-INFM and Dipartimento di Fisica, Università di Pisa (Italy); ²Dipartimento di Chimica Generale ed Inorganica, Chimica Analitica e Chimica Fisica, Università di Parma (Italy).....[PRE10_49]

3:00 pm: **Fluoride Crystals for Photonic Applications in the Visible Region, (Invited Paper)** *Alessandra Toncelli,* NEST Istituto di Nanoscienze – CNR, University of Pisa (Italy)

Coffee Break.....Fri. 3:30-4:00 pm

POSTER SESSION II.....Fri. 4:00-5:00 pm

CLOSING REMARKS

Conference Room.....Fri. 6:15 to 6:30 pm

POSTER SESSION II

Room: *Foyer - in front of Conference Room*.....Fri. 4:00 - 5:00 pm

Conference participants are invited to attend the poster session to network with colleagues and view the poster papers. Authors of poster papers will be present to answer questions concerning their papers. Poster Authors must set up their poster before 11:00 a.m. of Friday 30 April and remove it before 7:00 p.m. of the same day.

Energy transfer processes in $\text{Sr}_3\text{Tb}_{0.9}\text{Eu}_{0.1}(\text{PO}_4)_3$. *Marco Bettinelli^{1,*}, Jumpei Ueda², Adolfo Speghini³, Fabio Piccinelli¹ and Setsuhisa Tanabe²*. ¹Laboratorio di Chimica dello Stato Solido, Università di Verona, and INSTM (Italy); ²Graduate School for Human and Environmental Studies, Kyoto University (Japan); ³DiSTeMeV, Università di Verona and INSTM (Italy).....[PRE10-01]

Spectroscopic features relevant to laser performance of Er^{3+} -doped YVO_4 , GdVO_4 and LuVO_4 crystals. A comparative study. *W. Ryba-Romanowski¹, R. Lisiecki¹, P. Solarz¹, G. Dominiak-Dzi¹, T. Lukasiewicz²*. ¹Institute of Low Temperature and Structure Research, Polish Academy of Sciences, Wrocław (Poland); ²Institute of Electronic Materials Technology, Warsaw (Poland).....[PRE10-6]

Emission dynamics in CaMoO_4 crystals doped with Pr^{3+} . *Enrico Cavalli¹, Philippe Boutinaud², Marco Bettinelli³, Pieter Dorenbos⁴*. ¹Dipartimento di Chimica Generale ed Inorganica, Università di Parma (Italy); ²Laboratoire des Matériaux Inorganiques, Université Blaise-Pascal et ENSCCF, Aubière (France); ³Laboratorio di Chimica dello Stato Solido, Università di Verona, and INSTM (Italy); ⁴Faculty of Applied Sciences, Delft University of Technology (The Netherlands).....[PRE10-8]

Spectroscopy of titanium doped magnesium-aluminum-silicate glass and glass-ceramics. *Mark A. Hughes, Takenobu Suzuki and Yasutake Ohishi*. Research Center for Advanced Photon Technology, Toyota Technological Institute, Nagoya (Japan).....[PRE10-11]

Optical spectroscopy of Nd^{3+} -doped $\text{M}_3\text{Al}_2\text{Ge}_3\text{O}_{12}$ (M= Ca or Cd) single crystals. *Enrico Cavalli, Alessandro Belletti*. Dipartimento di Chimica Generale ed Inorganica, Università di Parma (Italy)..... [PRE10-16]

Influence of water on non-radiative decay of $\text{Yb}^{3+} : ^2\text{F}_{5/2}$ in phosphate glass. *Hiroyuki Ohkawa, Hideaki Hayashi, Yuki Kondo*. Research Center, Asahi Glass Co., Ltd., Kanagawa (Japan)....[PRE10-23]

Spectroscopic study of Ce^{3+} doped aluminoborosilicate glasses. *Eugenia Malchukova, Bruno Boizot, Nadege Ollier*. Laboratoire des Solides Irradiés, CEA- CNRS - Ecole Polytechnique, Palaiseau (France)[PRE10-30]

Analysis of lasing efficiency in laser crystal powders doped with neodymium. *B. García-Ramiro¹, M.A. Illarramendi¹, I. Aramburu¹, J. Fernández^{1,2,3} and R. Balda^{1,2,3}*. ¹Departamento de Física Aplicada I, Escuela Técnica Superior de Ingeniería, Universidad del País Vasco, Bilbao (Spain); ²Unidad Física de Materiales CSIC-UPV/EHU; ³Donostia International Physics Center (DIPC), Donostia (Spain).....[PRE10-38]

Pump and Probe measurement of optical amplification at 575 nm in dysprosium doped lithium niobate crystal. *P. Haro-González¹, L. L. Martín¹, I. R. Martín^{1,*}, G. Grazyna Dominiak-Dzik², W. Ryba-Romanowski²*. *MALTA Consolider Team; ¹Dpto. de Física Fundamental, Electrónica y Sistemas, Universidad de La Laguna, Tenerife (Spain); ²Institute of Low Temperature and Structure Research, Polish Academy of Sciences, Wrocław (Poland).....[PRE10-56]

Temperature sensor based on green upconverted emission in Er^{3+} -doped fluorotellurite glasses. *Sergio F. León-Luis, Emmanuel Lalla, Ulises R. Rodríguez-Mendoza, Víctor Lavín*. Departamento de Física Fundamental y Experimental, Electrónica y Sistemas. Universidad de La Laguna, Santa Cruz de Tenerife, (Spain).....[PRE10-57]

Correlation between fluorescence spectra shape's and specific morphologic aspects in Er^{3+} doped $\text{SiO}_2\text{-TiO}_2\text{-PO}_{2.5}$ sol-gel thin films. *H. C. Vasconcelos^{1,2}, S. Sérgio² and Y. Nunes²*. ¹Azores

University, Department of Science Technologies and Development, Ponta Delgada, Açores (Portugal);
² CEFITEC - Centro de Física e Investigação Tecnológica, Dep. de Física da FCT/UNL, Caparica (Portugal).....[PRE10-60]

Synthesis and Characterization of Titania and Zirconia doped Tb³⁺ monoliths grown by Sol-Gel Process. *A. Carrasco-Angeles¹, R. Palomino-Merino¹, E. Moreno-Barbosa¹, J. E. Espinosa¹, E. Cruz-Zaragoza², J. Martínez-Juárez³, G. Juárez-Díaz³.* ¹Posgrado en Física Aplicada, Facultad de Ciencias Físico Matemáticas, Benemérita Universidad Autónoma de Puebla (México); ²Instituto de Ciencias Nucleares, UNAM; ³Centro de Investigación en Dispositivos Semiconductores, Benemérita Universidad Autónoma de Puebla (México).....[PRE10-64]

Spectroscopic and laser properties of Pr³⁺:GGG crystal. *G. X. Cai¹, M. Zhou¹, H. Y. Xu¹, Z. P. Cai¹, C.Y. Tu².* ¹Department of Electronic Engineering, University of Xiamen (China); ²Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences, Fuzhou (China).....[PRE10-75]

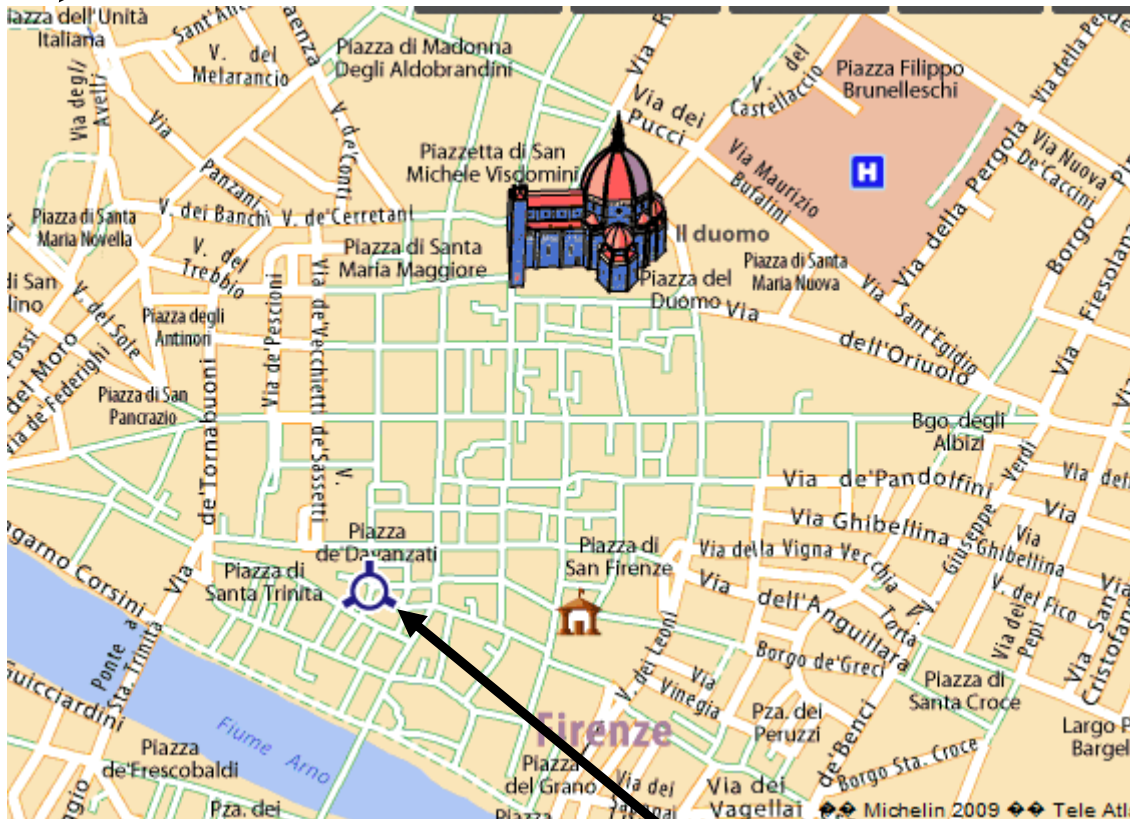
468 nm blue laser generation in Nd³⁺:GGG crystal by frequency doubling. *M. Zhou, G. X. Cai, F. Q. Jia, Z. P. Cai, H. Y. Xu.* Department of Electronic Engineering, University of Xiamen (China).....[PRE10-76]

Ion-implanted optical waveguides in Er³⁺-doped tellurite glasses. *S. Berneschi¹, M. Bettinelli², M. Brenci¹, G. Nunzi Conti¹, S. Pelli¹, A. Speghini³, I. Bányász⁴, M. Fried⁵, N.Q. Khanh⁵, T. Lohner⁵, A. Watterich⁵, Z. Zolnai⁵, G. C. Righini¹.* ¹MDF Lab, Nello Carrara Institute of Applied Physics, CNR, Sesto Fiorentino (Italy); ²Laboratorio di Chimica dello Stato Solido, Università di Verona, and INSTM (Italy); ³DiSTeMeV, Università di Verona, and INSTM (Italy); ⁴Research Institute of Solid State Physics and Optics, Hungarian Academy of Sciences, Budapest (Hungary); ⁵Research Institute for Technical Physics and Materials Science, Hungarian Acad. of Sciences, Budapest (Hungary).....[PRE10-90]

Europium-doped borosilicate glasses produced through the Sol-Gel method. Optical properties. *M. G. Ventura,¹ A. J. Parola,¹ C. A. T. Laia,¹ A. Pires de Matos².* ¹REQUIMTE, Chemistry Department, FCT, New University of Lisbon, Caparica (Portugal); ²VICARTE, FCT, New University of Lisbon, Caparica, (Portugal).....[PRE10-92]

Spectroscopy of Eu(III) in a alkaline silicate glass. *Andreia Ruivo^{1,2}, Vânia S. F. Muralha², César A.T. Laia¹, António Pires de Matos².* ¹REQUIMTE, Chemistry Department, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Caparica (Portugal); ²VICARTE, Vidro e Cerâmica para as Artes, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Caparica (Portugal)..... [PRE10-93]

Santa Maria Novella Station



**Wednesday 28 April - 16:30 – Registration opens at *Palagio di Parte Guelfa*
 17:00 – 19:00 WELCOME PARTY open to all participants and accompanying persons in the historic building of *Palagio di Parte Guelfa*.**

CNR Research Area

Workshop on Thursday and Friday

How to get there from Santa Maria Novella Station:

- a) Get a local train to Firenze Rifredi and there transfer to bus # 59.
- OR
- b) Get the bus # 57

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<http://www.ifac.cnr.it/pre10/Info.html>



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