



Strasbourg (France)

E-MRS 2005 Spring Meeting  
May 31 – June 3, 2005

## SYMPOSIUM C

### Rare earth doped photonic materials

Symposium Organizers :

**Yasufumi Fujiwara**, Osaka University, Japan

**Anthony J. Kenyon**, University College London, U.K.

**Bernard Moine**, CNRS, Université Lyon, France

**Pierre Ruterana**, SIFCOM-ENSICAEN, Caen, France

Symposium Support

**Sous-Direction scientifique du service de la recherche et des études  
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Papers to be published in Optical Materials

# E-MRS 2005 Spring Meeting

## SYMPOSIUM C

Tuesday, May 31, 2005  
Mardi 31 mai 2005

Morning  
Matin

### Session I : Compound semiconductors Session chairs : T. Kenyon, P. Ruterana

- C-I.01** 9:00 -Invited- STRUCTURE AND ELECTRICAL ACTIVITY OF RE DOPANTS IN SEMICONDUCTORS  
**R. Jones**
- C-I.02** 9:30 EXCITATION CROSS SECTION OF Er-2O LUMINECENT CENTER IN Er,O-CODOPED GaAs GROWN BY ORGANOMETALLIC VAPOR PHASE EPITAXY  
Y. Fujiwara(a), T. Tokuno(a), H. Ichida(b), A. Koizumi(c), Y. Takeda(c) and Y. Kanematu(b), (a)Department of Materials Science and Engineering, Graduate School of Engineering, Osaka University, 2-1 Yamadaoka, Suita, Osaka 565-0871, Japan, (b)Venture Business Laboratory, Center for Advanced Science and Innovation, Osaka University, 2-1 Yamadaoka, Suita, Osaka 565-0871, Japan, (c)Department of Crystalline Materials Science, Graduate School of Engineering, Nagoya University, Furo-cho, Chikusa-ku, Nagoya 464-8603, Japan
- C-I.03** 9:45 TEMPERATURE DEPENDENT PAC STUDIES WITH THE RARE EARTH 172-Lu IN ZnO  
R. Nédélec, R. Vianden, HISKP Universität Bonn, Nußallee 14-16, 53115 Bonn, Germany and the ISOLDE Collaboration, CERN, 1211 Genève 23, Switzerland
- C-I.04** 10:00 PHOTOLUMINESCENCE PROPERTIES OF Eu-DOPED II-VI SEMICONDUCTOR NANOCRYSTALS  
A. Ishizumi, Graduate School of Materials Science, Nara Institute of Science and Technology, Ikoma, Nara 630-0192, Japan and Y. Kanemitsu, Institute for Chemical Research, Kyoto University, Uji, Kyoto 611-0011, Japan
- C-I.05** 10:15 DOPING EFFECTS ON 1.54 $\mu$ m PHOTOLUMINESCENCE FROM Er-CONTAINING ZnO  
Zhen Zhou(a,b), Toshitaka Komori(a), Tatsuya Ayukawa(a), Atsushi Koizumi(b), Noriaki Matsunami(c), Yoshikazu Takeda(b), Masahiko Morinaga(a), (a)Department of Materials Science and Engineering, Graduate School of Engineering, Nagoya University, Furo-cho, Chikusa-ku, Nagoya, Aichi 464-8603, Japan, (b)Venture Business Laboratory, Ecotopia Science Institute, Nagoya University, Furo-cho, Chikusa-ku, Nagoya, Aichi 464-8603, Japan, (c)Division of Energy Science, Ecotopia Science Institute, Nagoya University, Furo-cho, Chikusa-ku, Nagoya, Aichi 464-8603, Japan
- 10:30 **BREAK**

## Session II : RE in bulk crystals

### Session chairs : J. Shin, B. Moine

- C-II.01** 10:45 MODEL BASED OPTIMIZATION OF SOME GROWTH PROCESS PARAMETERS OF A Nd:YVO<sub>4</sub> CYLINDRICAL BAR GROWN BY EDGE-DEFINED FILM-FED GROWTH (E.F.G.) METHOD IN THE PRESENCE OF THE PRESSURE  
L. Braescu(a), A.M. Balint(b), R. Szabo(a), S. Balint(a), (a)Department of Applied Mathematics, West University of Timisoara, Blv. V. Parvan 4, 300223 Timisoara, Romania, (a)Department of Physics, West University of Timisoara, Blv. V. Parvan 4, 300223 Timisoara, Romania
- C-II.02** 11:00 DIODE-PUMPED INFRARED AND UPCONVERSION EMISSIONS IN Er<sup>3+</sup>-DOPED AND Yb<sup>3+</sup>-CO-DOPED PLZT CERAMICS  
J.A. Eiras, A.S.S. de Camargo, E.R. Botero, D. Garcia, Univ. Federal de São Carlos, Rod. Washington Luiz Km 235, 13565-905, São Carlos – SP, Brazil and L.A.O. Nunes, Univ. de São Paulo, CP 369, 13560-970, São Carlos – SP, Brazil
- C-II.03** 11:15 INFLUENCE OF Yb<sup>3+</sup> AND Ce<sup>3+</sup> DOPING ON THE STRUCTURE AND LUMINESCENCE OF Er<sup>3+</sup>-DOPED TRANSPARENT GLASS-CERAMICS  
G. Dantelle, M. Mortier, D. Vivien, Laboratoire de Chimie Appliquée de l'Etat Solide, CNRS-UMR 7574, ENSCP, 11 rue Curie, 75005 Paris, France and G. Patriarche, Laboratoire de Photonique et Nanostructures, CNRS-UPR20, route de Nozay, 91460 Marcoussis, France
- C-II.04** 11:30 LUMINESCENT CHARACTERIZATION OF LEAD TUNGSTATE CRYSTALS DOPED WITH EUROPIUM, PRASEODYMIUM, AND YTTERBIUM IONS  
O. Antonenko, O. Chukova, S. Nedilko, Physics Faculty, Kyiv National Taras Shevchenko University, 2 block 1 acad. Hlushkov Ave., 03680 Kyiv, Ukraine and M. Pashkovskiy, Physics Faculty, Lviv National Ivan Franko University, Lviv, Ukraine
- C-II.05** 11:45 PROBING INTERACTIONS BETWEEN RARE-EARTH IONS IN A Cs<sub>2</sub>NaY<sub>1-x</sub>Er<sub>x</sub>F<sub>6</sub> CONCENTRATION SERIES, A MODEL SYSTEM FOR WIDE-BANDGAP SOLIDS  
H. Vrielinck(a,b), I. Izeddin(a), T. Gregorkiewicz(a), H. De Cooman(b), F. Loncke(b), F. Callens(b), J. Lauwaert(b) and P. Clauws(b), (a)University of Amsterdam, Van der Waals-Zeemaninstitute, Valckenierstraat 65, 1018 XE Amsterdam, The Netherlands, (b)Ghent University, Department of Solid State Sciences, Krijgslaan 281-S1, 9000 Gent, Belgium
- C-II.06** 12:00 -Invited- HYPERFINE STRUCTURE OF Tm<sup>3+</sup> IN YAG FOR QUANTUM STORAGE APPLICATIONS  
**Ph. Goldner**, O. Guillot-Noël, Laboratoire de Chimie Appliquée de l'Etat Solide, CNRS-UMR 7574, ENSCP, 11 rue Pierre et Marie Curie 75231 Paris Cedex 05, France, F. de Sèze, V. Crozatier, I. Lorgeté, F. Bretenaker, J.-L. Le Gouët, Laboratoire Aimé Cotton, CNRS UPR 3321, bâtiment 505,campus universitaire 91405 Orsay Cedex, France
- 12:30 **LUNCH**

Tuesday, May 31, 2005  
Mardi 31 mai 2005

Afternoon  
Après-midi

### Session III : GaN I

Session chairs : Y. Fujiwara, R. Mahiou

- C-III.01** 14:00 -Invited- IMPACT OF AlGa<sub>N</sub> ON LUMINESCENCE CAPABILITY OF RARE-EARTH IONS IN AlGa<sub>N</sub>  
**A. Wakahara**, Toyohashi University of Technology, Toyohashi 441-8580, Japan
- C-III.02** 14:30 TEM INVESTIGATION OF Tm IMPLANTED GaN, THE INFLUENCE OF HIGH TEMPERATURE ANNEALING  
**T. Wojtowicz**, F. Gloux, P. Ruterana, SIFCOM UMR 6176 CNRS-ENSICAEN, 6, Boulevard du Marechal Juin, 14050 Caen Cedex, France, K. Lorenz and E. Alves, Instituto Tecnológico e Nuclear, EN10, 2686-953 Sacavém, Portugal
- C-III.03** 14:45 DEPENDENCE OF GROWTH CONDITION ON THE PROPERTY OF EU-DOPED GAN FILMS PREPARED BY RADIO FREQUENCY MAGNETRON SPUTTERING  
**Shinji Yodate**, Ryo Sasaki, Takashi Kataoka, and Sho Shirakata, Electric and Electronic Engineering Department, Bunkyo-choh 3, 790-8577/Matuyama, Ehime Japan
- C-III.04** 15:00 OPTICAL PROPERTIES OF A SINGLE Er CENTER IN GaN  
V. Glukhanyuk, **H. Przybylinska**, A. Kozanecki, Institute of Physics, Polish Academy of Sciences, Al. Lotników 32/46, 02668 Warsaw, Poland and W. Jantsch, Institut für Halbleiter- und Festkörperphysik, Johannes Kepler Universität, Altenbergerstr. 69, 4040 Linz, Austria
- C-III.05** 15:15 Er<sup>3+</sup> EMISSION AND LOCAL STRUCTURE OF Er ATOMS IN BULK GaN  
**S.B. Aldabergenova**, H. Mendel, M. Albrecht, G. Frank and H.P. Strunk, Department of Materials Science and Engineering, Institute of Microcharacterization, Erlangen-Nürnberg University, Cauerstr.6, 91058 Erlangen, Germany, M. Bockowski, J. Borysiuk and S. Porowski, High Pressure Research Center, Polish Academy of Sciences, ul. Sokolowska 29/37, 01-142 Warsaw, Poland
- C-III.06** 15:30 -Invited- HIGH TEMPERATURE ANNEALING OF RARE EARTH IMPLANTED GaN-FILMS: STRUCTURAL AND OPTICAL PROPERTIES  
**K. Lorenz**(a), U. Wahl(a), E. Alves(a), E. Nogales(b), S. Dalmaso(b), R. W. Martin(b), K.P. O'Donnell(b), T. Wojtowicz(c), P. Ruterana(c), S. Ruffenach(d), O. Briot(d), (a)Instituto Tecnológico e Nuclear, EN10, 2686-953 Sacavém, Portugal, (b)Department of Physics, University of Strathclyde, Glasgow, G4 0NG, U.K., (c)SIFCOM, UMR 6176, CNRS-ENSICAEN, 14050 Caen, France, (d)GES, Université de Montpellier II, 34095 Montpellier, France

16:00

**BREAK**

### Session IV : GaN II

Session chairs : A. Wakahara, A. Kozanecki

- C-IV.01** 16:15 -Invited- RARE EARTH DOPED InGa<sub>N</sub> AND GaN QUANTUM DOTS  
**B. Daudin**, T. Andreev, X. Biquard, D. Jalabert, N.Q. Liem, Y. Hori, E. Monroy, B. Gayral, M. Tanaka, O. Oda and Le Si Dang
- C-IV.02** 16:45 LATTICE SITE LOCATION OF Lu IMPLANTED INTO GaN  
B. De Vries, A. Vantomme, Instituut voor Kern- en Stralingsfysica, K.U. Leuven, 3001 Leuven, Belgium, U. Wahl, E. Rita, J.G. Correia, Instituto Tecnológico e Nuclear, EN 10, 2685-953 Sacavém, Portugal, the ISOLDE Collaboration, CERN-EP, 1211 Genève, Switzerland
- C-IV.03** 17:00 TEM OBSERVATION OF Eu DOPED GaN AND FABRICATION OF n-GaN/Eu:Ga<sub>N</sub>/p-GaN STRUCTURE  
J. Sawahata, H. G. Bang, J. W. Seo, **K. Akimoto** Institute of Applied Physics, University of Tsukuba, Japan
- C-IV.04** 17:15 -Invited- EXCITATION AND QUENCHING MECHANISMS OF RARE-EARTH DOPED GaN  
**A. Braud**, L. Bodiou, J-L. Doualan, R. Moncorge, CIRIL-ENSICAEN, 6 Bd Maréchal Juin, 14000 Caen, France; K. Lorenz, E. Alves Instituto Tecnológico e Nuclear, Estrada Nacional 10, PT-2685-953 Sacavém, Portugal; B. Pipeleers, A. Vantomme, Instituut voor Kern- en Stralingsfysica Departement Natuurkunde, Celestijnenlaan 200 D, 3001 Leuven, Belgium
- C-IV.05** 17:45 -Invited- RE DOPED NITRIDES CHARACTERISED USING CATHODOLUMINESCENCE AND ELECTRON BEAM MICROANALYSIS  
**R.W. Martin**, E. Nogales, D. Amabile, K. Wang, V. Katchkanov, K.P. O'Donnell, C. Liu, I.M. Watson, K. Lorenz, E. Alves, V. Matias, B. Pipeleers, A. Vantomme, O. Briot, S. Ruffenach

## POSTER SESSION I

Tuesday, May 31, 2005  
18:15 – 19:30

- C/PI.01** Withdraw
- C/PI.02** GEOMETRY RELAXATION IN THE EXCITED STATES AND ITS EFFECTS ON THE ELECTRONIC PROPERTIES OF THE Er(8-HYDROXYQUINOLATE)<sub>3</sub> COMPLEX  
M. Ottonelli(a), G.M.M. Izzo(a), G.F. Musso(a), G. Dellepiane(a), F. Rizzo(a) and R. Tubino(b), (a)Università di Genova, Dipartimento di Chimica e Chimica Industriale, Via Dodecaneso 31, 16146 Genova, Italy (b)Università di Milano Bicocca, Dipartimento di Scienza dei Materiali Via Cozzi 53, 20126 Milano, Italy
- C/PI.03** SOME PROPERTIES OF POLYIMIDE FILMS MODIFIED BY RARE-EARTH COMPOUNDS  
A. Valozhyn, Institute of Electrical Engineering of Technical University of Szczecin, Szczecin Poland, E. Schab-Balcerzak, B. Jarbek, Centre of Polymer Chemistry, Polish Academy of Sciences, Zabrze, Poland, D. Tsirkunov, Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus, M. Tsvirko
- C/PI.04** PHOTOLUMINESCENT PROPERTIES OF Eu<sup>3+</sup> COMPLEX INTO PC/PMMA BLENDS  
R. Bonzanini, E.M. Giroto, E.C. Muniz, and A.F. Rubira, Departamento de Química, Universidade Estadual de Maringá, Av. Colombo 5790, 87020-990 Maringá, Paraná, Brazil, J.M.A. Caiut, and S.J.L. Ribeiro, Instituto de Química, Unesp, CP 355, 14801-970 Araraquara, São Paulo, Brazil
- C/PI.05** THE MICROSTRUCTURE OF LOW DOSE IMPLANTED GaN USING Cr, Er, Eu, Yb IONS  
F. Gloux, P. Ruterana, SIFCOM UMR 6176, CNRS-ENSICAEN, 14050 Caen, France, Z. Zavada, ARL, Durham, U.K.
- C/PI.06** SYNTHESIS AND OPTICAL PROPERTIES OF Eu<sup>3+</sup> AND Tb<sup>3+</sup> DOPED GaN NANOCRYSTALLITES  
Marcin Nyk(a), Robert Kudrawiec(a), Wieslaw Strek(b), Jan Misiewicz(a), (a)Institute of Physics, Wrocław University of Technology, Wrocław, Poland, (b)Institute of Low Temperature and Structure Research Polish Academy of Science, Wrocław, Poland
- C/PI.07** LATTICE ORDER IN THULIUM DOPED GaN EPILAYERS: IN SITU DOPING VERSUS ION IMPLANTATION  
S. Hernández(a), R. Cuscó(b), L. Artús(b), E. Nogales(a), K.P. O'Donnell(a), R.W. Martin(a), O. Briot(c), G. Halambalakis(c), K. Lorenz(d), E. Alves(d); (a)Depart. of Physics, Univ. of Strathclyde, Glasgow G4 0NG, U.K., (b)Inst. Jaime Almera, CSIC, Barcelona, Spain, (c)Univ. of Montpellier, France, (d)Instituto Tecnológico e Nuclear, Sacavem, Portugal
- C/PI.08** LUMINESCENCE OF Eu DOPED InGa<sub>N</sub> QUANTUM DOTS  
T. Andreev(a), N.Q. Liem(b), Y. Hori(a,c), E. Monroy(a), B. Gayra(a), M. Tanaka(c), O. Oda(c), Le Si Dang(a) and B. Daudin(a), (a)CEA/CNRS/UJF group Nanophysique et Semiconducteurs, 17 rue des Martyrs, 38054 Grenoble, France, (b)Institute of Materials Science, Vietnamese Academy of Science and Technology, 18 Hoang Quoc Viet –Cau Giay– Hanoi, Vietnam, (c)NGK Insulators, LTD 2-24 Sudacho, Mizuhoku, Nagoya, Japan
- C/PI.09** STUDY OF EXCITATION PATHS IN Eu IMPLANTED GaN  
L. Bodiou, A. Braud, J-L. Doualan, R. Moncorge, CIRIL-ISMRA, 6 Bd Maréchal Juin, 14000 Caen, France, K. Lorenz, E. Alves, Instituto Tecnológico e Nuclear, Estrada Nacional 10, 2685-953 Sacavém, Portugal
- C/PI.10** RAMAN STUDY OF IMPLANTATION DAMAGE RECOVERY FROM Er-IMPLANTED GaN AND AlGa<sub>N</sub>  
A.P. Vajpeyi and S.J. Chua, Singapore-MIT Alliance, National University of Singapore, Singapore, S. Banerjee, Saha Institute of Nuclear Physics, Kolkata, India, S. Tripathy, Institute of Materials Research and Engineering, 3 Research Link, Singapore
- C/PI.11** EXTENDED X-RAY ABSORPTION FINE STRUCTURE STUDIES OF GaN EPILAYERS DOPED WITH Er  
V. Katchkanov(a,b), K.P. O'Donnell(a), J.F.W. Mosselmann(b), S. Hernandez(a), E. Nogales(a), R.W. Martin(a), A. Steckl(c), D.S. Lee(c), (a)Department of Physics, Strathclyde University, 107 Rottenrow East, Glasgow G4 0NG, U.K., (b)Synchrotron Radiation Department, CCLRC Daresbury Laboratory, Daresbury, Warrington WA4 4AD, U.K., (c)Nanoelectronics Laboratory, University of Cincinnati, Cincinnati OH 45221-0030, USA
- C/PI.12** STRUCTURAL AND ELECTRICAL CHARACTERIZATION OF Eu IMPLANTED GaN  
V. Matias, M. Mamor, A. Vantomme, Instituut voor Kern- en Stralingsfysica, K.U.Leuven, Celestijnenlaan 200 D, 3001 Leuven, Belgium, A. Colder, P. Marie, P. Ruterana, SIFCOM UMR 6176, CNRS-ISMRA, 6, Bld Maréchal Juin, 14052, Caen, France, L. Wu, F. D. Auret, Dept of Physics, University of Pretoria, Pretoria 0002, South Africa
- C/PI.13** CATHODOLUMINESCENCE MEASUREMENTS AND THERMAL ACTIVATION OF RARE EARTH DOPED (Tb, Dy, Tm, Eu) A-ALN THIN FILMS PREPARED BY REACTIVE RF-SPUTTERING  
R. Weingärtner, O. Erlenbach, A. Winnacker Department of Materials Science 6, University of Erlangen, Martensstr. 7, 91058 Erlangen, Germany, H. Mendel, H.P. Strunk, Department of Materials Science 7, University of Erlangen, Cauerstr. 6, 91058 Erlangen, Germany

- C/PI.14** OPTICAL AND STRUCTURAL PROPERTIES OF Tm DOPED MBE GaN  
I.S. Roqan, E. Nogales, K.P. O'Donnell, R.W. Martin, C. Trager-Cowan, Dept. of Physics, University of Strathclyde, Glasgow G4 0NG, U. K.; G. Halambalakis, O. Briot, Groupe d'Etudes des Semiconducteurs, Université Montpellier II, 34095 Montpellier, France
- C/PI.15** HOW TO OPTIMIZE RARE EARTH EMISSION IN THIN AMORPHOUS NITRIDE LAYERS BY ANNEALING  
H. Mendel, S.B. Aldabergenova, G. Frank, H.P. Strunk, Universität Erlangen-Nürnberg, Institut für Werkstoffwissenschaften VII, Mikrocharakterisierung, Cauerstr. 6, 91058 Erlangen, Germany and D. Kovalev, Physik-Department E16, Technische Universität München, James-Franck-Str. 5, 85747 Garching, Germany
- C/PI.16** OPTICAL PROPERTIES OF HIGH TEMPERATURE ANNEALED EU-IMPLANTED GaN  
K. Wang, R.W. Martin, E. Nogales, S. Hernandez, V. Katchkanov, K.P. O'Donnell, Department of physics, University of Strathclyde, Glasgow G4 0NG, U.K., K. Lorenz, E. Alves, ITN, Estrada Nacional 10, 2686-953 Sacavém, Portugal, and S. Ruffenach, O. Briot, ES, Université de Montpellier II, 34095 Montpellier, France
- C/PI.17** SPACE HETEROGENEITY OF DISTRIBUTION OF RARE-EARTH ELEMENTS AND THE KINETICS OF MINORITY CARRIERS IN WURTZITE CRYSTALS GaN DOPED BY Eu, Sm, Er, Tm  
M.M. Mezdrogina, V.V. Krivolapchuk, V.V. Lundin, S.N. Rodin. Ioffe Physico-Technical Institute, St.Petersburg, Russia and Ju.V. Kozhanova, Polytechnical University, St.Petersburg, Russia
- C/PI.18** LUMINESCENT PROPERTIES OF Eu<sup>2+</sup>-ACTIVATED (Ba,Sr)<sub>3</sub>MgSi<sub>2</sub>O<sub>8</sub> PHOSPHOR UNDER VUV IRRADIATION  
Ha-Kyun Jung and Kyung-Soo Seo, Advanced Materials Division, Korea Research Institute of Chemical Technology, Advanced Materials Division, Yuseong, P.O.Box 107 Daejeon, Korea
- C/PI.19** THE SYNTHESIS OF EuF<sub>3</sub> MONODISPERSED NANOPARTICLES COVERED WITH TOPO  
N.A. Sapoletova, N.G. Zhuravleva, A.A. Eliseev, Yu.D. Tretyakov, A.V. Lukashin, Department of Material Science, Moscow State University, Vorobyevy Gory, 119992 Moscow, Russia, U. Kynast, FH Muenster, Dept. of Chem. Engineering, Appl. Mat. Science, Stegerwaldstr. 39, 48565 Steinfurt, Germany
- C/PI.20** MODIFIED POLYELECTROLYTE DEPOSITION OF NANOPARTICULATE ZnS THIN FILM  
C. Warm Singh, National Electronics and Computer Technology Center, 112 Thailand Science Park, Pathumthani, 12120 Thailand and B. Hemtanon, A. Sugunan, H.C. Warad, and J. Dutta, Department of Microelectronics, Asian Institute of Technology, P.O.Box 4, Klong Luang, Pathumthani, 12120 Thailand
- C/PI.21** PREFERENTIAL SITE SUBSTITUTION IN SOL-GEL DERIVED RARE-EARTH DOPED LU<sub>2</sub>SIO<sub>5</sub> : A COMBINED STUDY BY X-RAY ABSORPTION AND LUMINESCENCE SPECTROSCOPES  
C. Mansuy, F. Leroux, R. Mahiou and J.M. Nedelec, Laboratoire des Matériaux Inorganiques CNRS UMR 6002, 24 Avenue des Landais, 63177 Aubière Cedex, France
- C/PI.22** HIGHLY EFFICIENT Mn<sup>2+</sup> DOPED ZnS NANOPARTICLES  
H.C. Warad, Asian Institute of Technology, Thailand, C. Warm Singh, National Electronics and Computer Technology Center, Thailand, C. Thanachayanont, National Metal and Materials Technology Center, Thailand and J. Dutta, Department of Microelectronics, Asian Institute of Technology, Thailand
- C/PI.23** SYNTHESIS AND PHOTOLUMINESCENCE PROPERTIES OF DOPED WITH PRASEODYMIUM AND EUROPIUM DOUBLE ALUMINUM/INDIUM PHOSPHATES  
R. Bojko(a), O. Gomenyuk(a), S. Nedilko(a), P. Nagorny(a), M. Slobodyanik(a), V. Bojko(b), (a)Kyiv National Taras Shevchenko University, 2 block 1 acad. Hlushkov Ave., 03680 Kyiv, Ukraine, (b)National Agriculture University, 03041, Geroiv Oborony st., Kyiv, Ukraine
- C/PI.24** FLUORESCENCE OF NANOSTRUCTURED EU:Y<sub>2</sub>O<sub>3</sub> AND EU:LU<sub>2</sub>O<sub>3</sub> FILMS FABRICATED BY PULSED LASER DEPOSITION  
A.Pillonnet, C. Martinet, C. Garapon, Laboratoire de Physico-Chimie des Matériaux Luminescents, CNRS-Université Lyon-I, 10 rue André-Marie Ampère, 69622 Villeurbanne Cedex, France and J. Lancok, Institute of Physics Academy of Sciences of the Czech Republic, Na Slovance 2, 182 21 Prague, Czech Republic
- C/PI.25** LUMINESCENT CHARACTERIZATION OF SODIUM ORTHOPHOSPHATE CRYSTALS DOPED WITH NEODYMIUM, SAMARIUM, DYSPROSIUM, AND PRASEODYMIUM  
O. Chukova, S. Nedilko, Physics Faculty, Kyiv National Taras Shevchenko University, 2 block 1, Acad. Glushkov Ave., 03680 Kyiv, Ukraine and R. Boyko, P. Nagorny, M. Slobodyanik, Chemical Faculty, Kyiv National Taras Shevchenko University, 60 Volodymyrska Str., 01033 Kyiv, Ukraine
- C/PI.26** LUMINESCENT CHARACTERISTICS OF NANOCRYSTALLINE TiO<sub>2</sub>:Eu<sup>3+</sup> PHOSPHORS  
Byung Kee Moon, Byung Chun Choi, Jung Hyun Jeong, Department of Physics, Pukyong National University, Busan 608-737, Korea, Su Tae Chung, School of Electronic, Computer and Telecommunication Engineering, Pukyong National University, Busan 608-737, Korea, Soung-soo Yi, Department of Photonics, Silla University, Busan 617-736, Korea, Jung Hwan Kim, Department of Physics, Dong Eui University, Busan 614-714, Korea
- C/PI.27** SOL-GEL DERIVED METAPHOSPHATES Ln(PO<sub>3</sub>)<sub>3</sub>(Ln=Y,La): SYNTHESIS AND CHARACTERIZATION  
S. Briche, D. Zambon, D. Boyer\*, G. Chadeyron\* and R. Mahiou, Laboratoire des Matériaux Inorganiques, Université Blaise Pascal and ENSCCF\*, 24 Av. des Landais, 63177 Aubière, France

- C/PI.28** OPTICAL AND STRUCTURAL INVESTIGATION ON RARE-EARTH-DOPED ALUMINOPHOSPHATE GLASSES  
M. Elisa(a), I. Cristina Vasiliu(a), Cristiana E.A. Grigorescu(a), Bogdan Grigoras(b), Horatiu Niciu(b), Daniela Niciu(b), Aurelia Meghea(c), Nicoleta Ifimie(c), Maria Giurginca(c), J.H. Trodahl(d), M. Dalley(d), (a)Department for Advanced Materials, National Institute of Optoelectronics-INOE 2000 Atomistilor Str. 1, P.O.Box MG - 5, RO-77125, Com. Magurele, Romania, (b)National Institute of Glass, Department for Laser Glass Technology, Th. Pallady Str., nr.47, Bucharest, Romania, (c)Faculty of Industrial Chemistry, University Politehnica of Buchaest, Applied Spectroscopy Laboratory Polizu Str, 1, Bucharest, (d)School of Chemical and Physical Sciences, Victoria University Semicond.Laboratory, PO Box 600, Wellington, New Zealand
- C/PI.29** EFFICIENT BLUE EMITTING PHOSPHORS BY QUANTUM CUTTING MECHANISM IN RARE-EARTH DOPED MATERIALS.  
L. Beauzamy, B. Hautefeuille and B. Moine, Laboratoire de Physico-Chimie des Matériaux Luminescents, UMR 5620 du CNRS Université Claude-Bernard LYON1 university, 03041, Gerioiv Oborony st., Kyiv, Ukraine
- C/PI.30** THE LUMINESCENT PROPERTIES OF Ce AND Eu DOPED Sr<sub>4</sub>Al<sub>14</sub>O<sub>25</sub> PHOSPHORS  
Sang Hyuk Han(a), Sung Mook Chung(b), Young Jin Kim(c); (a)R&D Div., Phosphor Team, DAEJOO Electronic Materials, Kyonggi-Do, Korea; (b)Organic EL Devices Team, ETRI, Deajeon 305-350, Korea; (c)Department of Materials Science and Engineering, Kyonggi University, Suwon 443-760, Kyonggi-do, Korea
- C/PI.31** UV AND VIS UPCONVERSION EMISSION IN Er<sup>3+</sup> DOPED SOL-GEL SiO<sub>2</sub>-LaF<sub>3</sub> GLASS-CERAMICS  
J. Del-Castillo(a), A.C. Yanes(a), V.D. Rogriguez(b), J. Mendez-Ramos(b), M.E. Torres(a) and J. Peraza(a), (a)Dpto. Física Básica, Universidad de La Laguna, 38206 La Laguna, Tenerife, Spain, (b)Dpto. Física Fundamental y Experimental, Electrónica y Sistemas, Universidad de La Laguna, 38206 La Laguna, Tenerife, Spain
- C/PI.32** SYNTHESIS, CHARACTERIZATION AND LUMINESCENT PROPERTIES OF TRANSPARENT NANOSTRUCTURED Eu<sup>3+</sup> DOPED SOL-GEL SiO<sub>2</sub>-LaF<sub>3</sub> GLASS-CERAMICS  
J. Del-Castillo(a), A.C. Yanes(a), V.D. Rogriguez(b), J. Mendez-Ramos(b), M.E. Torres(A) and J. Peraza(a), (a)Dpto. Física Básica, Universidad de La Laguna, 38206 La Laguna, Tenerife, Spain, (b)Dpto. Física Fundamental y Experimental, Electrónica y Sistemas, Universidad de La Laguna, 38206 La Laguna, Tenerife, Spain

Wednesday, June 1, 2005  
Mercredi 1er juin 2005

Afternoon  
Après-midi

**Session V : Devices I**  
**Session chairs : J. Coffe, C. Ronda**

- C-V.01** 14:00 -Invited- 470 nm LED-PUMPED OPTICAL WAVEGUIDE AMPLIFIER BASED ON NANOCLUSTER-Si SENSITIZED, Er-DOPED SILICA  
Jinku Lee, Hak-Seung Han, and **Jung H. Shin**, Dept. of Physics, KAIST, 373-1 Guseong-dong, Yuseong-Gu, Namkyoo Park, Daejeon 305-701, Korea and Hansuek Lee, Optical Communication Systems Laboratory, School of EECS, Seoul National University, 151-742 Seoul, Korea
- C-V.02** 14:30 SHORT RANGE ORDER AROUND Er IN SILICA WAVEGUIDES CONTAINING Al, Ti AND Hf  
N.D. Afify and G. Dalba, INFN and Department of Physics, 38050 Povo (Trento), Italy, C. Armellini, M. Ferrari and **F. Rocca**, IFN-CNR Section of Trento, 38050 Povo (Trento), Italy, A. Kuzmin, ISSP, University of Latvia, Riga Latvia
- C-V.03** 14:45 EFFICIENT ELECTROLUMINESCENCE FROM Tb-IMPLANTED SILICON METAL-OXIDE-SEMICONDUCTOR DEVICES  
**J.M. Sun**, W. Skorupa, T. Dekorsy, and M. Helm, Institute of Ion Beam Physics and Materials Research, Forschungszentrum Rossendorf, POB 510119, 01314 Dresden, Germany, L. Rebohle and T. Gebel, Nanoparc GmbH, Dresden, Germany
- C-V.04** 15:00 Er<sup>3+</sup> DOPED Ge-Ga-Se GLASSES FOR SHORT LENGTH OPTICAL AMPLIFIERS  
**S.O. Kasap**, K. Koughia, M. Munzar, D. Tonchev, Department of Electrical Engineering, University of Saskatchewan, 57 Campus Drive, Saskatoon, SK, S7N 5A9 Canada and C. Haugen, R. Decorby, J.C. McMullin, 2TRLabs, 7th Floor, 9107 - 116 Street N.W., Edmonton, AB, T6G2V4, Canada and Department of Electrical and Computer Engineering, University of Alberta, Edmonton, AB, T5K 2P7, Canada
- C-V.05** 15:15 FABRICATION CONDITIONS AND SPECTROSCOPIC PROPERTIES OF RF-MAGNETRON DEPOSITED AND MICROSTRUCTURED Yb-DOPED SILICA GLASS FILMS FOR WAVEGUIDE LASER APPLICATION  
**A-S. Jacqueline**(a), V. Petit(b), F. Gourbilleau(a), P. Camy(b), J-L. Doualan(b), R. Moncorgé(b), R. Rizk(a),(a)SIFCOM, UMR 6176, CNRS-ENSICAEN, 6 bd. du maréchal Juin, 14050 Caen cedex, France, (b)CIRIL, UMR 6637, CNRS-CEA-ENSICAEN, 6 bd. du Maréchal Juin, 14050 Caen cedex, France
- C-V.06** 15:30 PHOTOLUMINESCENCE FROM Er-DOPED SILICON OXIDE MICROCAVITIES  
**A. Hryciw**, C. Blois, and A. Meldrum, Department of Physics, University of Alberta, Edmonton, Alberta T6G 2J1, Canada; T. Clement and R. DeCorby, Department of Electrical and Computer Engineering and TRILabs, University of Alberta, Edmonton, Canada; Q. Li, Department of Physics, Science Centre North Block, The Chinese University of Hong Kong, Shatin, NT, Hong Kong
- C-V.07** 15:45 FABRICATION OF Er/Yb-DOPED GeO<sub>2</sub> CHANNEL WAVEGUIDE AMPLIFIER  
**Iku Endo**, Nobuhiro Onouchi, Hideyuki Yamaguchi, Atsushi Shinbori, Satoru Matsumoto Keio University, Japan
- 16:00 **BREAK**

## Session VI : Devices II

Session chairs : F. Priolo, M. Fujii

- C-VI.01** 16:15 FABRICATION OF OPTICAL PLANAR AND CHANNEL WAVEGUIDES IN Yb<sup>3+</sup> DOPED KY(WO<sub>4</sub>)<sub>2</sub> BY HE-ION IMPLANTATION  
C.N. Borca, F. Záh, C. Schneider, R.P. Salathé, M. Pollnau, Advanced Photonics Laboratory, École Polytechnique Fédérale de Lausanne, 1015 Lausanne, Switzerland and P. Moretti, Laboratoire de Physico-Chimie des Matériaux Luminescents, Université Lyon 1, 69622 Villeurbanne Cedex, France
- C-VI.02** 16:30 Nd<sup>3+</sup> DOPED Sc<sub>2</sub>O<sub>3</sub> WAVEGUIDING FILMS PRODUCED BY PULSED LASER DEPOSITION  
Yury Kuzminykh, Andreas Kahn, Günter Huber, Institut für Laser-Physik, Luruper Chaussee 149, 22547 Hamburg, Germany
- C-VI.03** 16:45 PREFORMS AND FIBER LASERS FROM RARE-EARTH DOPED SOL-GEL GLASSES  
M. Locher, V. Romano, D. Michel, U. Pedrazza, R. Renner, W. Lüthy, Th. Feurer Institute of Applied Physics, University of Bern, Sidlerstrasse 5, 3012 Bern, Switzerland
- C-VI.04** 17:00 -Invited- RARE-EARTH-DOPED III-N SEMICONDUCTORS: THIN FILM GROWTH AND PROSPECTS FOR LASER DEVICES  
A. J. Steckl, NanoLab, University of Cincinnati, Cincinnati OH 45221-0030, USA

## Session VII : Thin films

- C-VII.01** 17:30 SENSITISATION OF ERBIUM LUMINESCENCE IN ERBIUM-IMPLANTED ALUMINA  
A.J. Kenyon, University College London, U.K., C.E. Chryssou, Southampton Photonics, U.K., T.M. Smeeton and C.J. Humphreys, University of Cambridge, U.K., D.E. Hole, University of Sussex, U.K.
- C-VII.02** 17:45 INFRARED-TO-VISIBLE CW FREQUENCY UPCONVERSION IN ER<sup>3+</sup>/YB<sup>3+</sup> CO-DOPED ALUMINA-SILICA XEROGELS PREPARED BY SOL-GEL ROUTE  
K. Tran Ngoc, G.D. Sorarù Dipartimento di Ingegneria Università di Trento, via Mesiano 77, 38050, Trento, Italy, L. Zampedri, M. Montagna, Dipartimento di Fisica, Università di Trento, CSMFO group, via Sommarive 14, 38050 Povo, Trento, Italy, H. Phan Thanh, C. Nguyen Duc, ITIMS-Hanoi University of Technology, No 1, Dai Co Viet, Hanoi, Vietnam, G.C. Righini CNR-IFAC Istituto di Fisica Applicata, "Nello Carrara", Optoelectronics and Photonics Department, via Panciatichi 64, 50127 Firenze, Italy, Y. Jestin, M. Ferrari, A. Chiasera, C. Armellini, CNR-IFN Istituto di Fotonica e Nanotecnologie, CSMFO group, via Sommarive 14, 38050 Povo, Trento, Italy
- C-VII.03** 18:00 IMPROVING EMISSION PERFORMANCE FROM Er-Tm CODOPED Al<sub>2</sub>O<sub>3</sub> THIN FILMS  
Zhisong Xiao, R. Serna, C. N. Afonso, Instituto de Optica, CSIC, Serrano 121, 28006 Madrid, Spain and I. Vickridge, Groupe de Physique des Solides, UMR 7588 du CNRS, Université de Paris 6 et 7, 2, Place Jussieu, 75251 Paris Cedex 05, France
- 19:00 **AWARD CEREMONY**  
The symposium organizers and the candidates to the graduate student award are requested to attend.

**CONFERENCE RECEPTION**

Thursday, June 2, 2005  
Jeudi 2 juin 2005

Morning  
Matin

## Session VIII : Phosphors I

Session chairs : P. Goldner, J. Evans-Freeman

- C-VIII.01** 9:00 -Invited- LUMINESCENT MATERIALS: PAST, PRESENT AND FUTURE  
C. Ronda, Philips Research Laboratories Aachen, 52072 Aachen, Germany and Utrecht University, Ornstein Laboratory, P.O. Box 80.000, 3508 TA Utrecht, The Netherlands
- C-VIII.02** 9:30 UNUSUAL FULL-COLOR PHOSPHORS: Na<sub>3</sub>RESi<sub>3</sub>O<sub>9</sub>  
D. Ananias(a), L.D. Carlos(b), J. Rocha(a), (a)Department of Chemistry, CICECO, University of Aveiro, 3810-193 Aveiro, Portugal, (b)Department of Physics, CICECO, University of Aveiro, 3810-193 Aveiro, Portugal
- C-VIII.03** 9:45 DEGRADATION MECHANISM OF PHOSPHORS BY VACUUM ULTRAVIOLET EXCITATION  
B. Moine and G. Bizarri, Laboatoire de Physico-Chimie des Matériaux Luminescents, UMR 5620 du CNRS, Université Claude-Bernard Lyon 1, France
- C-VIII.04** 10:00 -Invited- SOL-GEL SYNTHESIS AND LUMINESCENCE PROPERTIES OF FLUORIDE-BASED PHOSPHORS  
S. Lepoutre, D. Boyer and R. Mahiou, Laboratoire des Matériaux Inorganiques, UMR CNR 6002, Université Blaise Pascal & ENSCCF 24, Avenue des Landais, 63177 Aubière Cedex, France
- 10:30 **BREAK**
- C-VIII.05** 11:00 PHOSPHOR POWDERS ELABORATED BY SPRAY-PYROLYSIS: CHARACTERIZATIONS AND POSSIBLE APPLICATIONS  
N. Joffin(a,b), B. Caillier(c), A. Garcia(d), P. Guillot(c), A. Fernandes(a), R. Mauricot(a), J. Dexpert-Ghys(a), (a)CEMES-CNRS, 29 rue Marvig BP 94347, 31055 Toulouse Cedex, France, (b)DGTec, 178 rue de Mayoussard, Cent'alp, 38430 Moirans, France, (c)CPAT-UPS, 118 route de Narbonne, 31062 Toulouse Cedex, France, (d)ICMCB, 87 av Dr Schweitzer, 33608 Pessac, France
- C-VIII.06** 11:15 -Invited- PHOTON MANAGEMENT WITH LANTHANIDES  
A. Meijerink, R. Wegh and P. Vergeer, Debye Institute, Dept. of Chemistry, Utrecht University, The Netherlands

## Session IX : Organic and related materials

- C-IX.01** 11:45 RED OLEDs FABRICATED BY Eu TERNARY COMPLEXES WITH CONDUCTING SECONDARY LIGANDS  
M.K. Lam(a), S.K. So(a), J.B. Yuan(b,c), L.M. Leung(b), M.L. Gong(c), (a)Department of Physics and Centre for Advanced Luminescence Materials, Hong Kong Baptist University, Hong Kong, China, (b)Department of Chemistry and Centre for Advanced Luminescence Materials, Hong Kong Baptist University, Hong Kong, China, (c)State Key Laboratory of Optoelectronic Materials and Technologies, School of Chemistry and Chemical Engineering, Sun Yat-sen University, Guangzhou 510275, China
- C-IX.02** 12:00 NATURE OF THE STATES EU ATOMS IN ORGANIC SEMICONDUCTORS  
V.V. Krivolapchuk, M.M. Mezdrogina., V.L. Berkovits, E.I. Terukov, Ioffe Physico-Technical Institute, J.V. Kozhanova, P.P. Seregin, E.C. Chuzakulov, S-Pb State Polytechnical University, T.A. Jurre, A.V. Zimanin, S-Pb State Technological University, St. Petesburg, Russia
- C-IX.03** 12:15 MOLECULAR DESIGN OF OPTICALLY ACTIVE NANOCOMPOSITES  
Sanjay Mathur(a), Hao Shen(a), Eva Hemmer(a), Christian Cavelius(a), Christian Petersen(a), Nicolas Lecerf(b) and Aivaras Kareiva(c), (a)CVD Division, Leibniz Institute of New Materials Saarland University Campus, Im Stadtwald PO box 50 11 63, 66041 Saarbruecken, Germany, (b)SINTEF Materials Technology, Ceramics Group PB 124 Blindern, 0314 Oslo, Norway, (c)Department of General and Inorganic Chemistry Vilnius University, 2006 Vilnius, Lithuania
- 12:30 **LUNCH**

Thursday, June 2, 2005  
Jeudi 2 juin 2005

Afternoon  
Après-midi

## Session X : Silicon and related nanostructures I

Session chairs : A. Steckl, A. Meijerink

- C-X.01** 14:00 -Invited- PHOTONIC PROPERTIES OF Er-doped Si MULTI-NANOLAYER STRUCTURES  
**T. Gregorkiewicz**, N.Q. Vinh, M.A.J. Klik, S. Minissale, Van der Waals-Zeeman Institute, University of Amsterdam, The Netherlands and B.A. Andreev, A.N. Yablonsky, Institute for Physics of Microstructures, Nizhny Novgorod, Russia
- C-X.02** 14:30 MICROSCOPIC THEORY FOR EXCITATION OF ERBIUM IONS VIA SILICON NANOCRYSTALS IN SILICON DIOXIDE  
**I.N. Yassievich**, A.S. Moskalenko, A.A. Prokofiev, Ioffe Physico-Technical Institute of RAS, Politekhnikeskaya 26, 194021 St.Petersburg, Russia
- C-X.03** 14:45 SILICON-BASED LIGHT EMISSION FROM RARE EARTH ION-IMPLANTED SILICON DIOXIDE  
**W. Skorupa**(a,b), J.M. Sun(a), T. Dekorsy(a), M. Helm(a), L. Rebohle(b), T. Gebel(b), A.N. Nazarov(c), I.P. Tjagulski(c), I.N. Osiyuk(c), S. Prucnal(d), J. Zuk(d), (a)Inst. of Ion Beam Phys. and Mat. Res., Forschungszentrum Rossendorf, Dresden, Germany, (b)nanoparc GmbH, Dresden, Germany, (c)Inst. of Semicond. Phys., Kiev, Ukraine, (d)Maria Curie-Sklodowska-Univ., Lublin, Poland
- C-X.04** 15:00 CAVITY-RINGDOWN SPECTROSCOPY OF THE ER<sup>3+</sup> INTRA-4F ABSORPTION CROSS SECTION AT 1.5  $\mu$ m IN SI-RICH SiO<sub>2</sub>  
**H. Mertens** and A. Polman, Center for Nanophotonics, FOM-Institute AMOLF, Kruislaan 407, 1098 SJ Amsterdam, The Netherlands; I.M.P. Aarts, W.M.M. Kessels, and M.C.M. van de Sanden, Department of Applied Physics, Eindhoven University of Technology, P.O. Box 513, 5600 MB Eindhoven, The Netherlands
- C-X.05** 15:15 MULTIPLICATION OF Er-RELATED ELECTROLUMINESCENCE SIGNAL IN MULTIDIODE Si/Si:Er STRUCTURES  
**M.V. Stepikhova**, A.M. Sharonov, Z.F. Krasil'nik, Institute for Physics of Microstructures, Russian Academy of Sciences GSP-105, 603950 Nizhny Novgorod, Russia, V.P. Kuznetsov, Physico-Technical Research Institute, Nizhny Novgorod State University, Gagarin Ave. 23, 603950 Nizhny Novgorod, Russia
- C-X.06** 15:30 -Invited- ENERGY TRANSFER FROM SILICON NANOCRYSTALS TO ERBIUM IONS  
**Minoru Fujii**, Department of Electrical & Electronics Engineering, Faculty of Engineering, Kobe University, Japan

16:00 **BREAK**

## Session XI : Silicon and related nanostructures II

Session chairs : R. Jones, L. Tessler

- C-XI.01** 16:15 -Invited- OPTICAL AND ELECTRICAL ACTIVITY OF DEFECTS IN RARE EARTH IMPLANTED SILICON  
**J.H. Evans-Freeman**, K.D. Vernon-Parry and N. Abdulgader, Materials and Engineering Research Institute, Sheffield Hallam University, Sheffield S1 1WB, U.K.
- C-XI.02** 16:45 STUDY OF THE Si-NC TO ER<sup>3+</sup> ENERGY TRANSFER DYNAMICS USING A DOUBLE-PULSE EXPERIMENT  
**M. Falconieri**, ENEA,C.R Casaccia, via Anguillarese 301, 00060 Roma, Italy, E. Borsella, L. De Dominicis, ENEA,C.R. Frascati, via E. Fermi 45, 00044 Frascati (Roma), Italy, F. Enrichi, INFN, Dip. Fisica Univ. Padova, via Marzolo 8, 35131 Padova, Italy, G. Franzò, F. Priolo, INFN, Dip. Fisica e Astronomia Univ. Catania, via S. Sofia 64, 95123 Catania, Italy, F. Iacona, CNR-IMM, Stradale Primosole 50, 95121 Catania, Italy, F. Gourbilleau, and R. Rizk, ENSICAEN, SIFCOM CNRS UMR 6176, 6 Bd Marechal Juin, 14050 Caen, France
- C-XI.03** 17:00 A FRACTION OF EXCITABLE ER<sup>3+</sup> IONS IN SILICON-RICH-SILICON-OXIDE  
**D. Kuritsyn**, Institute for Physics of Microstructures, Russian Academy of Sciences, GSP-105, Nizhny Novgorod 603950, Russia, A. Kozanecki, H. Przybylinska, Institute of Physics, Polish Academy of Sciences, Al. Lotników 32/46, 02-668 Warsaw, Poland, and W. Jantsch, Institute für Halbleiterphysik, J. Kepler Univeristy, 4040 Linz, Austria

17:30-19:00 **POSTER SESSION II**

**POSTER SESSION II**  
Thursday, June 2, 2005  
17:30 – 19:00

- C/PII.01** OPTICAL PROPERTIES OF ND-ENRICHED SILICON NANOPARTICLE GLASSES  
A.N. MacDonald, A. Hryciw and A. Meldrum, Department of Physics, University of Alberta, Edmonton T6G 2J1, Canada, Q. Li, Department of Physics, Science Centre North Block, The Chinese University of Hong Kong, Shatin, NT, Hong Kong
- C/PII.02** MICROSCOPIC THEORY OF ERBIUM ION DE-EXCITATION PROCESSES IN SILICON  
A.A. Prokofiev, I.N. Yassievich, Ioffe Physico-Technical Institute, 26 Polytechnicheskaya, 194021 St.Petersburg, Russia
- C/PII.03** CHARGE TRAPPING IN SiO<sub>2</sub> LAYERS IMPLANTED WITH RARE EARTH AND Ge IONS  
S. Prucnal, Maria Curie-Skłodowska University, Pl. M. Curie-Skłodowskiej 1, 20-031 Lublin, Poland; J. Sun, W. Skorupa Institute of Ion Beam Physics and Materials Research, Forschungszentrum Rossendorf e.V., POB 510119, 01314 Dresden, Germany; A. Nazarov, I. Osiyuk, I. Tyagulski, V. Lysenko Institute of Semiconductors Physics, National Academy of Sciences of Ukraine, Prospect Nauki 45, 03028 Kyiv, Ukraine
- C/PII.04** PHOTOLUMINESCENCE FROM Er-DOPED Ge NANOCRYSTALS IN SiO<sub>2</sub> PRODUCED BY CVD AND MAGNETRON SPUTTERING  
T. L. Pedersen, Jesper Skov Jensen, Pia Bomholt, Jacques Chevalier, Arne Nylandsted Larsen, Brian Bech Nielsen, Institute of Physics and Astronomy, University of Aarhus, 8000 Aarhus C, Denmark, Ole Hansen, MIC-Department of Micro and Nanotechnology, DTU, 2800 Kgs. Lyngby, Denmark
- C/PII.05** OPTICAL PROPERTIES OF THE Er-1 CENTER IN Si/Si:Er MULTILAYERS  
S. Minissale(a), N.Q. Vinh(b), M.A.J. Klik(a), Z.F. Krasil'nik(c) and T. Gregorkiewicz(a), (a) Van der Waals-Zeeman Institute, University of Amsterdam, Valckenierstraat 65, 1018 XE Amsterdam, The Netherlands, (b)FOM Institute for Plasma Physics "Rijnhuizen" P.O. Box 1207, 3430 BE Nieuwegein, The Netherlands, (c)Institute for Physics of Microstructures, GSP-105, 603600 Nizhny Novgorod, Russia
- C/PII.06** ELECTRO-OPTICAL MEMORY EFFECT FOR 1.54 MKM ELECTROLUMINESCENCE OF ER DOPED SI DIODE  
B. Andreev, Z. Krasil'nik, D. Kryzhkov, V. Kuznetsov, A. Yablonskiy, Institute for Physics of Microstructures RAS, N. Novgorod 603950, Russia, W. Jantsch, Institut für Halbleiter- und Festkörperphysik, Johannes Kepler Universität, Linz, Austria
- C/PII.07** THE EFFECT OF ANNEALING CONDITIONS ON THE CRYSTALLIZATION OF ER-SI-O FORMED BY SOLID PHASE REACTION  
K. Masaki, H. Isshiki and T. Kimura, Department of Electronic Engineering, Univ. of Electro-Communications, Tokyo 182-8585, Japan
- C/PII.08** ERBIUM-DOPED SILICON QUANTUM DOTS GROWN BY R.F. SPUTTERING METHOD. COMPETITION BETWEEN OXYGEN AND SILICON TO GET ERBIUM  
M.F. Cerqueira(a), M. Stepihova(b), M. Losurdo(c), A. Kozanecki(d), T. Monteiro(e), (a)Departamento de Física, Universidade do Minho, Campus de Gualtar 4710-057 Braga, Portugal, (b)Institute for Physics of microstructures, RAS, 603600 Nizhny Novgorod, GPS-105, Russia, (c)Institute of Inorganic Methodologies and Plasmas, IMIP-CNR, Via Orabona 4-70126 Bari, Italy, (d)Polish Academy of Sciences, Institute of Physics, 02668 Warsaw, (e)Departamento de Física, Universidade de Aveiro, Campus de Santiago, 3700 Aveiro, Portugal
- C/PII.09** RARE-EARTH DOPING OF SILICON NITRIDES AND OXYNITRIDES FOR CARRIER-MEDIATED EXCITATION OF VISIBLE LUMINESCENCE  
Hoon Jeong, Daigil Cha, Kwan-Sik Cho, and Jung H. Shin Dept. of Physics, KAIST, 373-1 Guseong-dong, Yuseong-Gu, Daejeon, Korea
- C/PII.10** Er-doped silicon Nanoparticles from sputtered SiO<sub>x</sub> thin films  
Danilo Mustafa and Leandro R. Tessler, IFGW, Unicamp, 13083-970 Campinas, SP, Brazil
- C/PII.11** A COUPLING OF EUROPIUM IONS WITH CHALCOGENIDE NANOPARTICLES: EFFECTS UPON THE LUMINESCENCE WITHIN SILICA MATERIALS  
Y.S. Gurin, Physico-Chemical Research Institute, Belarusian State University, Leningradskaya str. 14, 220080 Minsk, Belarus, J.-C. Pivin, CSNSM, Batiment 108, 91405 Orsay Campus, France, A.A. Alexeenko, Gomel State Technical University, Gomel, Belarus
- C/PII.12** OPTIMIZATION OF THE OPTICAL PROPERTIES OF Er-DOPED Si-Rich SiO<sub>2</sub>/SiO<sub>2</sub> MULTILAYERS OBTAINED BY REACTIVE MAGNETRON SPUTTERING  
F. Gourbilleau, C. Dufour, R. Madelon, R. Rizk, SIFCOM, UMR CNRS 6176, ENSICAEN, 6 Bd MI-Juin, 14050 Caen Cedex, France
- C/PII.13** PHOTOCHROMIC PROCESS IN BaFCl:Sm<sup>2+</sup> WITH AN BLUE SEMICONDUCTOR LASER  
K. Tanaka, Graduate School of Materials Science, Nara Institute of Science and Technology, Ikoma, Nara 630-0192 Japan and Y. Kanemitsu, Institute for Chemical Research, Kyoto University, Uji, Kyoto 611-0011, Japan

- C/PII.14** Ce-Zr-Al-O SYSTEM WITH HOST-GUEST INTERACTIONS: PECULIARITIES OF THE OPTICAL PROPERTIES  
E. Frolova, M. Ivanovskaya, Y. Kosareva, Research Institute for Physical Chemical Problems, BSU, Leningradskaya str. 14, 220050 Minsk, Belarus
- C/PII.15** QUALITY CHARACTERIZATION OF Nd:YAG RODS BY MEANS OF SYNCHROTRON RADIATION  
D. Chiriu, A. Anedda, C.M. Carbonaro, R. Corpino, M. Marceddu, P.C. Ricci, Università di Cagliari, Dipartimento di Fisica and INFN UdR Cagliari, S.P. Monserrato Sestu Km 0,700, 09042 Monserrato, Italy
- C/PII.16** OPTICAL BISTABILITY IN YTTERBIUM-DOPED CRYSTALS  
O. Guillot-Noël, Ph. Goldner, Ecole Nationale Supérieure de Chimie de Paris (ENSCP), Laboratoire de Chimie Appliquée de l'Etat Solide, UMR-CNRS 7574, 11 rue Pierre et Marie Curie, 75231 Paris Cedex 05, France
- C/PII.17** Eu DOPED (Lu/Sc)<sub>2</sub>O<sub>3</sub> THIN FILMS GROWN BY THERMAL EVAPORATION  
Lutz Rabisch, Sebastian Bär, Hanno Scheife, Institut für Laser-Physik, Luruper Chaussee 149, 22761 Hamburg, Germany
- C/PII.18** A CONTROL PROCEDURE FOR THE SHAPE OF A Nd:YAG AND Nd:YVO<sub>4</sub> CYLINDRICAL BAR GROWN BY EDGE-DEFINED FILM-FED GROWTH METHOD WHEN THE PRESSURE IN THE FURNACE OSCILLATES  
A.M. Balint(a), L. Braescu(b), R. Szabo(b), St. Balint(b), (a)Department of Physics, West University of Timisoara, Blv. V. Parvan 4, 300223 Timisoara, Romania, (b)Department of Applied Mathematics, West University of Timisoara, Blv. V. Parvan 4, 300223 Timisoara, Romania
- C/PII.19** PECULIARITIES OF PHOTOTRIGGER PHENOMENON IN LAMINAR MONOCRYSTALS OF A<sub>3</sub>B<sub>6</sub> COMPOUNDS, DOPED BY RARE ELEMENTS  
A.Sh. Abdinov, R.F. Babaeva, R.M. Rzaev and G.Kh. Eyvazova, Physical Electronics Department, Faculty of Physics, Baku State University, Z.Khalilov str. 23, 370148 Baku, Azerbaijan
- C/PII.20** INFLUENCE OF Pr IMPURITIES ON THE ELECTRONIC STRUCTURE OF DIELECTRIC OXIDE CRYSTALS AWO<sub>4</sub> (A = Cd, Zn)  
Yu.A. Hizhnyi, S.G. Nedilko, T.N. Nikolaenko, Faculty of Physics, Kyiv National Taras Shevchenko University, 2 block 1 Glushkova av., 03680, Kyiv, Ukraine
- C/PII.21** NEAR-INFRARED SPECTROSCOPY AND ENERGY TRANSFER IN Tm<sup>3+</sup>-DOPED LEAD LANTHANUM ZIRCONATE TITANATE (PLZT) TRANSPARENT CERAMICS  
A.S.S. de Camargo, E.R. Botero, D. Garcia, J.A. Eiras, Rod. Washington Luiz Km 235, 13565-905, São Carlos – SP, Brazil and L.A.O. Nunes, Univ. de São Paulo, CP 369, 13560-970, São Carlos – SP, Brazil
- C/PII.22** OPTICAL PROPERTIES OF ERBIUM DOPED POROUS SILICON PLANAR WAVEGUIDES  
A. Najjar(a,b), N. Lorrain(b), J. Charrier(b), H. Elhouichet(a), M. L. Haji(b), (a)Unité de Recherche Spectroscopie Raman, Faculté des Sciences de Tunis, Campus Universitaire El Manar II, 2092 Tunis, Tunisie, (b)Laboratoire d'Optronique UMR 6082, ENSSAT, B.P. 447, 6 rue de Kérampont, 22305 Lannion Cedex France
- C/PII.23** THE EFFECT OF B-DOPING ON THE FLUORESCENCE OF Er-DOPED Ge-SiO<sub>2</sub> WAVEGUIDE FILM  
Kang Ill Cho, Ki Hyun Cho, Duck Kyun Choi, Dong Wook Shin, Department of Ceramic Engineering, Hanyang University, 17 Haengdang-Dong, Seongdong-Ku, Seoul 133-791, Korea
- C/PII.24** OBSERVATION OF THE POPULATION INVERSION OF ERBIUM ION STATES IN Si/Si<sub>1-x</sub>Ge<sub>x</sub>:Er/Si STRUCTURES UNDER OPTICAL EXCITATION  
M.V. Stepihova, L.V. Krasil'nikova, Z.F. Krasil'nik, Institute for Physics of Microstructures, Russian Academy of Sciences, GSP-105, 603950 Nizhny Novgorod, Russia, V.G. Shengurov, V.Yu. Chalkov, Physico-Technical Research Institute, Nizhny Novgorod State University, Gagarin Ave. 23, 603950 Nizhny Novgorod, Russia, D.M. Zhigunov, O.A. Shalygina, V.Yu. Timoshenko, Moscow State University, Physics Faculty, 119992 Moscow, Russia
- C/PII.25** PHOTSENSITIVE GaSe<Dy> CRYSTALS AND HETEROJUNCTIONS ON THEIR BASE  
Z.D. Kovalyuk(a), V.M. Katerynychuk(a), A.I. Savchuk(b), (a)Chernivtsi Department of the Institute of Materials Science Problems, The National Academy of Sciences of Ukraine, 5 Iryna Vilde St., 58001 Chernivtsi, Ukraine, (b)Dept. of Phys. Electronics and Nontraditional Energetics, Chernivtsi National University, 2 Kotsyubynsky St., 58012 Chernivtsi, Ukraine
- C/PII.26** Nd<sup>3+</sup> DOPED Sc<sub>2</sub>O<sub>3</sub> WAVEGUIDING FILMS PRODUCED BY PULSED LASER DEPOSITION  
Yury Kuzminykh, Andreas Kahn, Günter Huber, Institut für Laser-Physik, Luruper Chaussee 149, 22547 Hamburg, Germany
- C/PII.27** THE EFFECT OF AN ADDITIONAL R.F. DISCHARGE ON THE PROPERTIES OF Pr:GGG FILMS FABRICATED BY PULSED LASER DEPOSITION  
J. Lancok, M. Jelinek, Institute of Physics Academy of Sciences of the Czech Republic, Na Slovance 2, 182 21 Prague, Czech Republic and C. Garapon, Laboratoire de Physico-Chimie des Matériaux Luminescents, CNRS-Université Lyon-I, 10 rue André-Marie Ampère, 69622 Villeurbanne Cedex, France
- C/PII.28** OPTICAL AND LUMINESCENT PROPERTIES OF TERBIUM DOPED Y<sub>2</sub>O<sub>3</sub> PLANAR WAVEGUIDE  
Y.C. Wu, R. Bazzi, A. Pillonnet, O. Tillement, J. Mugnier, Laboratoire de Physico-Chimie des Matériaux Luminescents, CNRS-UMR 5620, Université Claude Bernard Lyon-I, France

- C/PII.29** CaGdAlO<sub>4</sub>, AN Yb<sup>3+</sup> MULTI-SITE MATERIAL FOR TUNABLE SOLID STATE LASER AND HIGH POWER LASER APPLICATIONS  
Johan Petit, Philippe Goldner, Bruno Viana, Laboratoire de Chimie Appliquée de l'Etat solide, Ecole Nationale Supérieure de Chimie de Paris, 11 rue P et M Curie, 75231 Paris cedex 05, France
- C/PII.30** ANOMALOUS Tb<sup>3+</sup> LUMINOUS SPECTRUM IN THE TiO<sub>2</sub> NANOCRYSTALS  
Jung Hwan Kim and Haeyoung Choi: Dept. of Physics, Dongeui University, Busan, 614-714, Korea. Byung Kee Moon and Jung Hyun Jeong: Dept. of Physics, Pukyong National University, Busan, 608-737, Korea. Soung-soo Yi: Dept. of Photonics, Silla University, Busan, 617-736, Korea
- C/PII.31** RARE-EARTH-DOPED GVO FILMS GROWN BY PULSED LASER DEPOSITION  
Sebastian Bär, Hanno Scheife, Günter Huber, Institute of Laser-Physics, Luruper Chaussee 149, 22761 Hamburg, Germany
- C/PII.32** 1.53mm PHOTOLUMINESCENCE FROM ER-DOPED SOL-GEL DERIVED IN<sub>2</sub>O<sub>3</sub> FILMS EMBEDDED IN POROUS ANODIC ALUMINA  
A. Podhorodecki, R. Kudrawiec, J. Misiewicz, Institute of Physics Wroclaw University of Technology, Wroclaw, Poland; N. V. Gaponenko, D. Tsyrukunow, Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus
- C/PII.33** OPTICAL PROPERTIES OF ERBIUM-DOPED XEROGELS EMBEDDED IN POROUS ANODIC ALUMINA  
N.V. Gaponenko, G.K. Malyarevich, D.A. Tsyrukunou E.A. Stepanova, A.V. Mudryi, Belarusian State University of informatics and Radioelectronics, P. Browki St.6, 220013 Minsk, Belarus, O.B. Gusev, E.I. Terukov, Ioffe Physicotechnical Institute, Russian Academy of Sciences, St. Petersburg, Russia, M.V. Stepikhova, L.V. Krasilnikova and Yu.N. Drozdov, Institute for Physics of Microstructures, Russian Academy of Sciences, Nizhny Novgorod, Russia
- C/PII.34** Li-DOPING EFFECT ON ENHANCEMENT OF PHOTOLUMINESCENCE IN Gd<sub>2</sub>O<sub>3</sub>:Eu<sup>3+</sup> FILMS  
Soung-soo Yi, Dept. of Photonics, Silla University, Busan 617-736, Korea, Hyun Kyong Yang, Byung Kee Moon, Sung Boo Kim and Jung Hyun Jeong, Dept. of Physics, Pukyong National University, Busan 608-737, Korea, Jung Hwan Kim, Dept. of Physics, Dongeui University, Busan 614-714, Korea
- C/PII.35** NANOCRYSTALLINE ER:YAG THIN FILM PREPARED BY PULSED LASER DEPOSITION  
D. Stanoi, G. Socol, S. Georgescu, C. Stoicescu, I. Mihailescu, National Institute for Laser, Plasma and Radiation Physics -Laser Department, P.O. Box MG-36, 77125 Bucharest, Romania, A.P. Carricato, M. Martino, A. Luches, University of Lecce, Physics Department, Lecce, Italy
- C/PII.36** LUMINESCENCE PROPERTIES OF ERBIUM DOPED MIXED ALUMINA YTTRIA THIN FILMS  
Jean-Luc Deschanvres(a), Camille Gras(a), Stephan Guy(b), (a)Laboratoire des Matériaux et du Génie Physique, CNRS-ENSPG, St Martin d'Hères France; (b)Laboratoire de Physico-Chimie des Matériaux Luminescents, Université Claude Bernard Lyon 1, Villeurbanne, France
- C/PII.37** LUMINESCENT RARE EARTH DOPED LAPONITE XEROGELS AND FILMS  
Rogéria Rocha Gonçalves(a), Jairo Tronto(a), Sidney José Lima Ribeiro(b), João Barros Valim (a), (a)Departamento de Química, Faculdade de Filosofia Ciências e Letras de Ribeirão Preto, Universidade de São Paulo, Av. dos Bandeirantes 3900, 14.040-901, Ribeirão Preto, SP Brazil, (b)Departamento de Química Inorgânica, Instituto de Química de Araraquara, Universidade Estadual Paulista, R. Francisco Degni, s/n, 14.800-090, Araraquara, SP Brazil
- C/PII.38** THE EFFECTS OF SUBSTRATES AND DEPOSITION PARAMETERS ON THE GROWING AND LUMINESCENT PROPERTIES OF Y<sub>3</sub>Al<sub>5</sub>O<sub>12</sub>:Ce THIN FILMS  
Joo Won Kim(a), Sang Hyuk Han(b), Young Jin Kim(a) (a)Dept. of Materials Science and Engineering, Kyonggi University, Suwon 443-760, Korea, (b)R&D Div., Phosphor Team, DAEJOO Electronic Materials, Kyonggi-Do, Korea
- C/PII.39** SURFACE MORPHOLOGY DEPENDENT PHOTOLUMINESCENCE CHARACTERISTICS OF Eu-DOPED YVO<sub>4</sub> THIN FILMS  
Byung Chun Choi(a), Kyoo Sung Shim(a), Byung Kee Moon(a), Jung Hyun Jeong(a), Jong Seong Bae(b), Soung-soo Yi(c), Jung Hwan Kim(d), (a)Department of Physics, Pukyong National University, Busan 608-737, Korea, (b)Basic Science Research Institute, Pukyong National University, Busan 608-737, Korea, (c)Department of Photonics, Silla University, Busan 617-736, Korea, (d)Department of Physics, Dong Eui University, Busan 614-714, Korea

Friday, June 3, 2005  
Vendredi 3 juin 2005

Morning  
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## Session XII : Silicon and related nanostructures III

Session chairs : W. Skorupa, T. Kimura

- C-XII.01** 9:00 -Invited- THE IMPACT OF ERBIUM ON THE STRUCTURE AND PHOTPHYSICS OF SILICON-GERMANIUM NANOWIRES  
Jeffery L. Coffey and Ji Wu, Department of Chemistry, Texas Christian University, Fort Worth TX 76129, USA
- C-XII.02** 9:30 ENERGY TRANSFER TO AND FROM Er<sup>3+</sup> IN SiO<sub>2</sub> DOPED WITH Si NANOCRYSTALS  
I. Izeddin(a), V.Yu. Ivanov(a,b), M.A.J. Klik(a) and T. Gregorkiewicz(a), (a)Van der Waals-Zeeman Institute, University of Amsterdam. Valckenierstraat, 1018XE Amsterdam, The Netherlands, (b)Institute of Physics, Polish Academy of Science. Al.Lotnikow 32/42, 02668 Warsaw, Poland
- C-XII.03** 9:45 1.54-mM LUMINESCENCE FROM ER-DOPED AMORPHOUS SI QUANTUM DOT FILM  
Nae-Man Park, Tae-youb Kim, Kyung-Hyun Kim, Gun Yong Sung, Future Technology Research Division, Electronics and Telecommunications Research Institute, Daejeon 305-350, Korea, Kwan Sik Cho, Jung H. Shin, Department of Physics, Korea Advanced Institute of Science and Technology, Daejeon 305-701, Korea, Baek-Hyun Kim, Seong-Ju Park, Department of Materials Science and Engineering, Gwangju Institute of Science and Technology, Gwangju 500-712, Korea, Jung-Kun Lee and Michael Nastasi, Materials Science & Technology Division, Los Alamos National Laboratory, NM 87545, USA
- C-XII.04** 10:00 NEODYMIUM EMISSION AND SHORT-RANGE ORDER IN AMORPHOUS SiN<sub>x</sub>  
D. Biggermann(a), S.B. Aldabergenova(b), H.P. Strunk(b), L.R. Tessler(a), (a)"Gleb Watagnin" Institute of Physics, State University of Campinas, CP 6165, 13083-970 Campinas, Brazil, (b)Department of Materials Science and Engineering, Institute of Microcharacterization, Erlangen-Nürnberg University, Cauerstr. 6, 91058 Erlangen, Germany
- C-XII.05** 10:15 ON THE ROLE OF YB IMPURITY IN EXCITATION OF ER<sup>3+</sup> EMISSION IN SILICON-RICH SILICON OXIDE  
A. Kozanecki, Institute of Physics, Polish Academy of Sciences, Al. Lotników 32/46, 02-668 Warsaw, Poland, D. Kuritsyn, Institute for Physics of Microstructures, Russian Academy of Sciences, GSP-105, Nizhnyi Novgorod, 603950, Russia and W. Jantsch, J. Kepler University, 4040 Linz, Austria
- 10:30 **BREAK**

## Session XIII : Silicon and related nanostructures III

- C-XIII.01** 11:00 OPTICAL ACTIVAION OF SEMICONDUCTOR NANOWIRES WITH RARE-EARTH DOPED, SOL-GEL DERIVED SILICA  
Kiseok Suh and Jung H. Shina) Department of Physics, KAIST, 373-1 Guseong-dong, Yuseong-gu, Daejeon, Korea, Oun-Ho Park and Byeong-Soo Bae, Laboratory of Optical Materials and Coating (LOMC), Department of Materials Science and Engineering, KAIST, 373-1 Guseong-dong, Yuseong-gu, Daejeon, Korea, Jung-Chul Lee, Materials science and Technology Division, KIST, P.O. Box 131, Cheongryang, Seoul 130-650, Korea, Heon-Jin Choi, School of Advanced Materials Science and Engineering, Yonsei University, 120-749 Korea
- C-XIII.02** 11:15 TOWARDS EPITAXIAL GROWTH OF ErSiO NANOSTRUCTURED CRYSTALLINE FILMS ON Si SUBSTRATES  
H. Isshiki, M. Masaki, K. Ueda, K. Tateishi and T. Kimura, University of Electro-Communications, Chofugaoka, Chofu, Tokyo 182-8585, Japan
- C-XIII.03** 11:30 -Invited- LIGHT EMITTING DEVICES BASED ON RARE EARTH DOPED Si NANOCCLUSERS  
F. Priolo, S. Boninelli, G. Franzò, A. Irrera, M. Miritello, D. Pacifici, C. Presti, INFN – MATIS and University of Catania, Via S. Sofia 64, 95123 Catania, Italy; F. Iacona, CNR – IMM Sezione di Catania, Stradale Primosole 50, 95121 Catania, Italy; G. Di Stefano, D. Sanfilippo, G. Fallica, STMicroelectronics, Stradale Primosole 50, 95121 Catania, Italy
- 12:00 **LUNCH**