Strasbourg (France)

E-MRS Spring Meeting 2004
May 24-28, 2004

SYMPOSIUM L

InN, GaN, AlN and related materials, their heterostructures and devices

Symposium Organizers:

Olivier Briot, University of Montpellier, France

K. Scott Buttcher, Macquarie University, Australia

Bernard Gil, University of Montpellier, France

Christian Wetzel, Uniroyal Optoelectronics, USA

Akihiko Yoshikawa, University of Chiba, Japan

Papers will be published in Superlattices and Microstructures

E-MRS 2004 SPRING MEETING

SYMPOSIUM L

Tuesday, May 25, 2004 Morning

Session I: Heteroepitaxy I
Session chair: B. Gil

L-I.1 09:00 -Invited- GAN MATERIALS AND DEVICES - STATUS AND CHALLENGES
Stacia Keller, S.P. DenBaars, and U.K. Mishra, Electrical & Computer Engineering Department, University of California, Santa Barbara CA 93106, USA

L-I.2 09:30 -Invited- GROUPIII-NITRIDES ON SILICON: EPITAXY AND DEVICES
Alois Krost, Institut für Experimentelle Physik, Otto-von-Guericke-Universität Magdeburg, PO Box 4120, 39016 Magdeburg, Germany

L-I.3 10:00 GROWTH OF GAN ON COMPLEX SI-BASED STRUCTURES
S.Q. Zhou(a), M.F. Wu(a,b), A. Vantomme(a), B.S. Zhang(c), H. Yang(c), X.P. Ye(d) and J.P. Celis(d), (a)Instituut voor Kern-en Stralingsfysica, University of Leuven, 3001 Leuven, Belgium, (b)Department of Technical Physics, School of Physics, Peking University, Beijing 100871, People's Republic of China, (c)National Research Center for Opto-Electronic Technology, Institute of Semiconductors, Chinese Academy of Sciences, Beijing 100083, People's Republic of China, (d)Departement Metaalkunde en Toegepaste Materiaalkunde (MTM), University of Leuven, 3001 Leuven, Belgium

L-I.4 10:15 GaN GROWTH on Si SUBSTRATES: BUFFER LAYERS, SURFACE CHEMISTRY and INTERFACE REACTIONS STUDIES
O. Kryliouk, M. Mastro, S.W. Kang, T.W. Kim, H.J. Park and T.J. Anderson, Dept. Chemical Engineering, 227 Chemical Engineering Bldg., University of Florida, Gainesville FL 32611, USA

10:30 **BREAK**

Session II: Heteroepitaxy II
Session chair: C. Wetzel

L-II.1 11:00 -Invited- AlGaN/DIAMOND HETEROSTRUCTURES
C.R. Miskys, J.A. Garrido, M. Hermann, M. Eickhoff, **M. Stutzmann**, Walter Schottky Institut, TU München, Am Coulombwall 3, 85748 Garching, Germany, and G. Vogg, Fraunhofer Institut IZM, Hansastraße 27d, 80686 München, Germany

L-II.2 11:30 HIGH QUALITY HETEROEPITAXIAL AlN FILMS ON DIAMOND
C.R. Miskys(a), G. Martinez-Criado(b), G. Vogg(c), J.A. Garrido(a), M. Eickhoff(a) and M. Stutzmann(a), (a)Walter Schottky Institut, Technische Universität München, Am Coulombwall, 85748 Garching, Germany, (b)European Synchrotron Radiation Facility (ESRF), 6 rue Jules Horowitz, B.P. 220, 38043 Grenoble, France, (c)Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration, Hansastr. 27d, 80686 München, Germany

L-II.3 11:45 GROWTH OF Al(x)Ga(1-x)N BULK SINGLE CRYSTALS
P. Geiser(a), J.Jun(a), S.M. Kazakov(a), P. Wägli(a), L. Klemm(b), J. Karpinski(a), B. Batlogg(a), (a)Laboratory for Solid State Physics, ETH Zürich, Switzerland, (b)Isotope Geochemistry and Mineral Resources, ETH Zürich, Switzerland

L-II.4 12:00 LOW TEMPERATURE GROWTH OF GALLIUM NITRIDE BY RPE-CVD
M. Wintrebert-Fouquet, K. Scott A. Butcher, Patrick Chen, Macquarie University, Australia

L-II.5 12:15 ROOM TEMPERATURE EPITAXILAL GROWTHS OF GROUP III NITRIDES
H. Fujioka(a,), J. Ohta(a), A. Kobayashi(a), and M. Oshima(a), (a)Department of Applied Chemistry, the University of Tokyo, Tokyo, Japan, (b)Kanagawa Academy of Science and Technology, Kawasaki, Japan

L-II.6 12:30 -Invited- IMPROVEMENT OF In-RICH InGaN CRYSTALLINE QUALITY BY USING InN TEMPLATE
M. Kurouchi, T. Yamaguchi, H. Naoi, A. Suzuki, T. Araki and **Y. Nanishi**, Dept. of Photonics, Center for Promotion of The 21st Century COE Program, Res. Org. of Sci. and Eng., Ritsumeikan University, Kusatsu, Japan

13:00 **LUNCH**

Tuesday, May 25, 2004 Afternoon

Session III: Doping and defects I
Session chair: S. Keller

L-III.1 14:00 -Invited- DOPING AND DEFECTS IN AlN AND InN
Chris G. Van de Walle, Palo Alto Research Center, Palo Alto CA 94304, USA

L-III.2 14:30 -Invited- ANOMALOUS PROPERTIES OF GaN EPILAYERS GROWN BY METALORGANIC CHEMICAL VAPOR DEPOSITION
Hyung Jae Lee, Semiconductor Physics Research Center, Chonbuk National University, Chonju 561-756, Korea

L-III.3 15:00 EFFECT OF Mg DOPING ON THE PROPERTIES OF Ga-FACE AND N-FACE POLARITY GaN
E. Monroy(a), T. Andreev(a), E. Sarigiannidou(a), M. Hermann(b), M. Eickhoff(b), P. Holliger(c), S. Monnoye(d), H. Mank(d), N. Gogneau(a) and B. Daudin(a), (a) Equipe mixte CEA-CNRS-UJF Nanophysique et Semiconducteurs, DRFMC/SP2M/PSC, CEA-Grenoble, 17 rue des Martyrs, 38054 Grenoble cedex 9, France, (b)Walter Schottky Institute, Technical University Munich, Am Coulombwall 3, 85748 Garching, Germany, (c)DRT / LETI / DTS, CEA-Grenoble, 17 rue des Martyrs, 38054 Grenoble cedex 9, France (4) Novasic, Savoie Technolac, l'Arche n°4, 73375 Le Bourget du Lac, France

L-III.4 15:15 TOWARD SEMI-INSULATING GaN LAYERS WITH LOW THREADING DISLOCATIONS THANKS TO Fe DOPING
M. Azize(a), Z. Bougrioua(a), P. Girard(b), P. Gibart(c) et al., (a)CRHEA-CNRS, Rue Bernard Gregory, 06560 Valbonne, France, (b)LAIN, Université Montpellier, 34095 Montpellier, France, (c)LUMILOG, 2720 Chemin St Bernard, 06220 Vallauris, France

L-III.5 15:30 QUANTITATIVE EVALUATION OF COMPOSITION FLUCTUATIONS AT THE NANOMETER SCALE INSIDE INGAN/GAN HETEROSTRUCTURES
P. Ruterana, P. Singh, SIFCOM-ENSICAEN, 6 Bd Maréchal Juin, 14050 Caen, France, S. Kret, Institute of Physics, PAS, Al. Lotników 32/46, 02-668 Warszawa, Poland, G. Jurczak, G. Maciejewski, P. Dluzewski, Instytut Podstawowych, Problemów Techniki PAS, Ul.Uwictokrzyska 21, Warszawa, Poland, H. Kim, H. Na, S.-Y. Kwon, E. Yoon Seoul National University, Seoul 151-742, Korea

L-III.6 15:45 DYNAMICS OF DUCTILE RELAXATION IN CRACKED ALGAN FILMS
J.-M. Bethoux, P. Vennéguès and P. De Mierry, Centre de Recherche sur l'Hétéro-Epitaxie et ses Applications, Centre National de la Recherche Scientifique, Rue Bernard Grégory, Sophia Antipolis, 06560 Valbonne, France

16:00 **BREAK**

Session IV: Doping and defects II
Session chair: M. Stutzmann

L-IV.1 16:30 -Invited- IDENTIFICATION OF VACANCY DEFECTS IN InN AND GaN
Kimmo Saarinen, Laboratory of Physics, Helsinki University of Technology, P.O. Box 1100, 02015 HUT, Finland

L-IV.2 17:00 ELECTRONIC PROPERTIES OF DEEP DONORS IN N-TYPE GAN
Pierre Muret(a), Max Hofheinz(a), Julien Pernot(a), Bernard Beaumont(b), Frank Omnes(b), Pierre Gibart(b), Christophe Gacquiere(c), Didier Theron(c), (a)Laboratoire d'Études des Propriétés Électroniques des Solides, C.N.R.S., B.P. 166, 38042 Grenoble Cedex 9, France, (b)Centre d'Etude sur l'Heteroépitaxie et ses Applications, C.N.R.S., Parc Sophia-Antipolis, 065602 Valbonne, France, (c)Institut d'Électronique, de Microélectronique et de Nanotechnologie, C.N.R.S., B.P. 69, Avenue Poincaré, 59652 Villeneuve d'Ascq, France

17:15 – 19:00 POSTER SESSION I

L/PI.01 BAND OFFSET CALCULATIONS FOR CUBIC III NITRIDE ALLOYS

A. Bhouri, H. Mejri and M. Said, Unité de Physique des solides, Département de Physique, Faculté des Sciences de Monastir, 5019 Monastir, Tunisia

L/PI.02 THREE PHONON PROCESSES IN GaN

H.W. Kunert, Department of Physics, University of Pretoria, 0001 Pretoria, South Africa

L/PI.03 MICRO-PHOTOLUMINESCENCE OF GaN QUANTUM DOTS EMBEDDED IN 100 nm WIDE CYLINDRICAL AlN PILLARS

T. Taliercio, S. Rousset, P. Lefebvre, T. Bretagnon, T. Guillet, B. Gil, Groupe d'Etude des Semicondcuteurs, UMR5650 CNRS-Université Montpellier II, CC074, 34095 Montepllier Cedex 5, France, D. Peyrade, Y. Chen, LPN/CNRS, Route de Nozay, 91460 Marcoussis, France, N. Grandjean, Centre de Recherche sur l'Hétéro-Epitaxie et ses Applications, Centre National de la Recherche Scientifique (CRHEA/CNRS), Rue Bernard Grégory, Parc Sophia Antipolis, 06560 Valbonne, France

L/PI.04 STATISTICAL PROPERTIES OF THE MAGNESIUM ACCEPTOR IN GaN

B. Santic, Rudjer Boskovic Institute, Bijenicka 54, P.O.Box 180, 10002 Zagreb, Croatia

L/PI.05 RAMAN AND INFRARED ACTIVE PHONON MODES IN STRAINED GAN/ALN SUPERLATTICES

E. Valcheva(a), V. Darakchieva(a), M. Abrashev(b), T. Paskova(a), B. Monemar(a), H. Amano(c) and I. Akasaki(c), (a)Dept. of Physics and Measurement Technology, Linköping University, 581 83 Linköping, Sweden, (b)Dept. of Condensed Matter Physics, Sofia University, 1164 Sofia, Bulgariab, (c)Dept. of Electrical and Electronic Engineering, Meijo University, Tempaku-ku, Nagoya 468, Japan

L/PI.06 PHOTOREFLECTANCE INVESTIGATIONS OF INTERNAL ELECTRIC FIELDS IN ALGAN/GAN HETEROSTRUCTURES WITH A TWO DIMENSIONAL ELECTRON GAS

R. Kudrawiec, M. Syperek, and J. Misiewicz, Institute of Physics, Wroclaw University of Technology, Wybrzeze Wyspianskiego 27, 50-370 Wroclaw, Poland, R. Paszkiewicz, B. Paszkiewicz and M. Tlaczala, The Faculty of Microsystem Electronics and Photonics, Wroclaw University of Technology Janiszewskiego 11/17, 50-372 Wroclaw, Poland

L/PI.07 MAGNETO-LUMINESCENCE FROM A TWO-DIMENSIONAL ELECTRON GAS IN UNDOPED AlGaN/GaN HETEROSTRUCTURES

G. Martínez-Criado(a), A. Cantarero(b), J.M. Calleja(c), A. Link(d), O. Ambacher(e) and M. Stutzmann(d), (a)European Synchrotron Radiation Facility, Experiments Division, 38043 Grenoble, France, (b)Materials Science Institute, University of Valencia, P.O. Box 22085, 46071 Valencia, Spain, (c)Dpto. Física de Materiales, Universidad Autónoma de Madrid, Cantoblanco, 28049 Madrid, Spain, (d)Walter Schottky Institute, Technical University of Munich, 85748 Garching, Germany, (e)Center for Micro-nanotechnologies, Technical University of Ilmenau, 98684 Ilmenau, Germany

L/PI.08 PL STUDIES ON ZnO SINGLE CRYSTALS IMPLANTED WITH THULIUM IONS

T. Monteiro(a), M.J. Soares(a), J. Wang(a), A.J. Neves(a), E. Rita(b,c), U. Wahl(b,c), J.G. Correia(b,c), E. Alves(b,c), (a)Departamento de Física da Universidade de Aveiro, Aveiro, Portugal, (b)Instituto Tecnológico e Nuclear, Sacavém, Portugal, (c)Centro de Física Nuclear da Universidade de Lisboa, Lisbon, Portugal

L/PI.09 MICROSCOPIC ANALYSIS OF LUMINESCENCE IN THICK MgZnO LAYERS AND MgZnO/ZnO QUANTUM WELLS

F. Bertram, D. Forster and J. Christen, Institute of Experimental Physics, Otto-von-Guericke-University Magdeburg, Germany, R. Kling and C. Kirchner, Dept. of Semiconductor Physics, Ulm University, Ulm, Germany, A. Waag, Department of Semiconductor Technology, Braunschweig Technical University, Germany

L/PI.10 MAGNETIC PROPERTIES OF GaMnN THIN FILMS GROWN BY PULSED LASER DEPOSITION

D. O'Mahony, F. McGee, J.G. Lunney, M. Venkatesan, J.M.D. Coey, Trinity College, Dublin, Ireland

L/PI.11 PHOTOREFLECTANCE OF P-TYPE GaN LAYERS GROWN BY METALOORGANIC VAPOR PHASE EPITAXY

R. Kudrawiec, M. Syperek and J. Misiewicz, Institute of Physics, Wroclaw University of Technology, Wybrzeze Wyspianskiego 27, 50-370 Wroclaw, Poland, R. Paszkiewicz, B. Paszkiewicz and M. Tlaczala, The Faculty of Microsystem Electronics and Photonics, Wroclaw University of Technology, Janiszewskiego 11/17, 50-372 Wroclaw, Poland

L/PI.12 POTENTIALITIES OF GaN-BASED MICROCAVITIES IN STRONG COUPLING REGIME AT ROOM TEMPERATURE

N. Antoine-Vincent(a), F. Natali(b), D. Byrne(b), P. Disseix(a), A. Vasson(a), J. Leymarie(a), F. Semond(b), J. Massies(b), (a)LASMEA, 24 Av. des Landais, 63177 Aubière Cedex, France, (b)CRHEA, Rue Bernard Grégory, 06560 Valbonne, France

L/PI.13 NITROGEN DOPING OF ZNO AND POST-GROWTH RAPID THERMAL ANNEALING

N. Oleynik, A. Dadgar, S. Deiter, F. Bertram, J. Bläsing, A. Krtschil, A. Diez, J.C Cristen, and A. Krost, Otto-von-Guericke-Universität Magdeburg, Institut für Experimentelle Physik, Fakultät für Naturwissenschaften, Postfach 4120, 39016 Magdeburg, Germany, M. Seip and A. Greiling, Mochem GmbH, Marburg, Germany

L/PI.14 ANISOTROPY OF THE DIELECTRIC FUNCTION FOR WURTZITE InN

R. Goldhahn(a), A.T. Winzer(a), V. Cimalla(b), O. Ambacher(b), C. Cobet(c), N. Esser(c), J. Furthmüller(d), F. Bechstedt(d), H. Lu(e), W.J. Schaff(e), (1)Inst. of Physics and (b) Center for Micro- and Nanotechnologies, TU Ilmenau, 98684 Ilmenau, Germany, (c)Inst. of Solid State Physics, TU Berlin, Germany, (d)Inst. of Solid State Theory and Theoretical Optics, University of Jena, Germany, (e)Cornell University, Ithaca, USA

L/PI.15 PHOTOCONDUCTIVITY MEASUREMENTS OF p-TYPE DOPED CUBIC GaN

Hanka Przybylinska(a), Gudrun Kocher(b), Wolfgang Jantsch(b), Donat As(c), Klaus Lischka(c), (a)Polish Academy of Sciences, Warsaw, Poland, (b)Johannes Kepler Universitaet, Linz, Austria, (c)Universitaet Paderborn, Germany

L/PI.16 TIGHT BINDING MODELING OF BAND OFFSET AND BANDGAP PROPERTIES IN III-N RELATED HETEROSTRUCTURES

Özden Akinci, H. Hakan Gürel and Hilmi Ünlü, Department of Physics and Informatics Institute, Istanbul Technical University, Maslak 80626 Istanbul, Turkey

L/PI.17 STUDY OF THE EMITTING SPECTRA OF InGaN/GaN SUPERLATTICS

Yen-Lin Lai(a), Regime Chen(b), Chuan-Pu Liu(a), (a)Department of Materials Science and Engineering, National Cheng Kung University, Tainan, Taiwan, (b)Genesis Photonics Inc company, Tainan, Taiwan

L/PI.18 FEMTOSECOND TIME-RESOLVED INTERFERENCES OF RESONANTLY EXCITED EXCITONS IN GaN

O. Aoudé(a), P. Disseix(a), J. Leymarie(a), A. Vasson(a), E. Aujol(b), B. Beaumont(b), (a)LASMEA, 24 Avenue des Landais, 63177 Aubière Cedex, France, (b)LUMILOG, 2720 Chemin de Saint Bernard, 06222 Vallauris, France

L/PI.19 STUDY OF THE ACTIVATION PROCESS OF Mg DOPANT IN GaN:Mg LAYERS

Regina Paszkiewicz, Bogdan Paszkiewicz, Adam Szyszka, Marek Tlaczala, The Faculty of Microsystem Electronics and Photonic, Wroclaw University of Technology, Janiszewskiego 11/17, 50-372 Wroclaw, Poland, Robert Kudrawiec, Marcin Syperek, Jan Misiewicz, Institute of Physics, Wroclaw University of Technology, Wybrzeze Wyspianskiego12, 50-370 Wroclaw, Poland, E. Dumiszewska, W. Strupinski, Institute of Electronic Materials Technology, Wólczynska 118, 01-919 Warszawa, Poland

L/PI.20 SELF-CONSISTENT CALCULATIONS OF EXCITON, BIEXCITON AND CHARGED EXCITON ENERGIES IN InGaN/GaN QUANTUM DOTS

D.P. Williams, NMRC, University College Cork, Cork, Ireland, A.D. Andreev, Advanced Technology Institute, University of Surrey, Guildford, U.K., D.A. Faux, Advanced Technology Institute, University of Surrey, Guildford, U.K., E.P. O'Reilly, NMRC, University College Cork, Cork, Ireland

Wednesday, May 26, 2004 Afternoon

Session V: Electrons and transport in InN
Session chair: A. Yoshikawa

L-V.1 14:00 -Invited- ENERGY BAND GAP AND OPTICAL PROPERTIES OF InN AND RELATED ALLOYS: THEORY AND EXPERIMENTS
D. Alexandrov, Lakehead Unversity, 955 Oliver Road, Thunder Bay, Ontario P7B 5E1, Canada, K. Scott A. Butcher, Macquarie University, Sydney 2109 NSW, Australia

L-V.2 14:30 THEORETICAL ASSESSMENT OF ELECTRONIC TRANSPORT IN InN
C. Bulutay, Department of Physics, Bilkent University, Ankara, 06800, Turkey, B.K. Ridley, Department of Electronic Systems Engineering, University of Essex, Colchester C04 3SQ, U.K.

L-V.3 14:45 INTRINSIC ELECTRON ACCUMULATION AT CLEAN INDIUM NITRIDE SURFACES
T.D. Veal, I. Mahboob and C.F. McConville, Department of Physics, University of Warwick, Coventry CV4 7AL, U.K., H. Lu and W.J. Schaff, Department of Electrical and Computer Engineering, Cornell University, Ithaca NY 14853, USA

L-V.4 15:00 IN PLANE PHOTOVOLTAGE MEASUREMENTS IN MBE GROWN InN
E. Tiras, Hacettepe University, Faculty of Engineering, Department of Physics, Beytepe, Ankara, Turkey, D. Zanato, University of Essex, Department of Electronic Systems Engineering, Colchester, U.K., S. Mazzucato, INFM, Dipartimento di Fisica, Universita' di Roma "La Sapienza", Rome, Italy, N. Balkan, University of Essex, Department of Electronic Systems Engineering, Colchester, U.K., W.J. Schaff, Department of Electrical and Computer Engineering, Cornell University, Ithaca NY, USA

L-V.5 15:15 -Invited- InN DEVICE PROCESSING – CHALLENGES AND OPPORTUNITIES
Richard Perks, Hassan Hirshy, Cardiff School of Engineering, Cardiff University, Queen's Building, The Parade, P.O. Box 689, Cardiff, Wales CF157LR, U.K.

15:45 **BREAK**

16:15 – 19:00 POSTER SESSION II

L/PII.01 TEMPERATURE DEPENDENCE OF INTRINSIC ELECTRON ACCUMULATION AT CLEAN INDIUM NITRIDE SURFACES
L.F.J. Piper, T.D. Veal, I. Mahboob and C.F. McConville, Department of Physics, University of Warwick, Coventry CV4 7AL, U.K. and H. Lu and W.J. Schaff, Department of Electrical and Computer Engineering, Cornell University, Ithaca NY 14853, USA

L/PII.02 ENERGY AND MOMENTUM RELAXATION OF HOT ELECTRONS IN BULK AND 2D GaN
D. Zanato(a), N. Balkan(a), B.K. Ridley(a), W.J. Schaff(b), G. Hill(c), (a)University of Essex, Department of Electronic Systems Engineering, Colchester, U.K., (b)Department of Electrical and Computer Engineering, Cornell University, Ithaca NY, USA, (c)University of Sheffield, Department of Electronic and Electrical Engineering, Sheffield, U.K.

L/PII.03 NEW APPLICATION OF InN
S. Shutov, E. Appazov, V. Shostak, V. Lashkaryov Institute of Semiconductor Physics, Khershon, Ukraine

L/PII.04 STRUCTURE AND ELECTRICAL ACTIVITY OF RARE-EARTH DOPANTS IN ALN
S. Petit, R. Jones, School of Physics, University of Exeter, Stocker Road, Exeter EX4 4QL, U.K., B. Hourahine, T. Frauenheim, Theoretische Physik, Universität Paderborn, Warburger Str. 100, 33098 Paderborn, Germany, P.R. Briddon, School of Natural Sciences, University of Newcastle upon Tyne, Newcastle upon Tyne NE1 7RU, U.K.

L/PII.05 SINGLE INTERSTITIALS IN C-BN
N. Pinho and V.J.B. Torres, Department of Physics, University of Aveiro, 3810-193 Aveiro, Portugal, R. Jones School of Physics, University of Exeter, Exeter EX4 4QL, U.K., P.R. Briddon, School of Natural Sciences, University of Newcastle upon Tyne, Newcastle upon Tyne NE1 7RU, U.K.

L/PII.06 PIEZORESPONSE FORCE MICROSCOPY OF GALLIUM NITRIDE
I.L. Guy, Z. Zheng and K.S.A. Butcher, Department of Physics, Macquarie University, NSW 2109, Australia, R. Shao and D. Bonnell, Department of Materials Science, University of Pennsylvania, 3231 Walnut St., Philadelphia PA 19104, USA

L/PII.07 CHARACTERISATION OF THICK HVPE GaN FILMS
Benliang Lei, Haohua Ye, Guanghui Yu, Ming Qi, State Key Laboratory of Functional Materials for Informatics, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai 200050, People's Republic of China, Gérard Nouet, Jun Chen and Pierre Ruterana, Laboratoire Structure des Interfaces et Fonctionnalité des Couches Minces, UMR CNRS 6176,ENSICAEN 6 Bld du Maréchal Juin, 14050 Caen cedex, France

L/PII.08 ANALYSIS OF GRAIN BOUNDARY FACETTING IN GaN
Jun Chen, Laboratoire Universitaire de Recherche Scientifique d'Alençon IUT d'Alençon, 61250 Damigny, France, Antoine Béré, Gérard Nouet, Pierre Ruterana, Laboratoire Structure des Interfaces et Fonctionnalité des Couchess Minces, ENSICAEN, 6 Bld du Maréchal Juin 14050 Caen cedex, France

L/PII.09 THE ROLE OF Mg COMPLEXES IN THE DEGRADATION OF InGaN-BASED LEDs

N. Armani(a), F. Rossi(a), G. Salviati(a), M. Pavesi(b), M. Manfredi(b), G. Meneghesso(c), S. Levada(c) and E. Zanoni(c), (a)IMEM-CNR Institute, Parco Area delle Scienze, 37/A, 43010 Loc. Fontanini (Parma), Italy, (b)Department of Physics and INFM, University of Parma, Parco Area delle Scienze, 7/A, 43100 Parma, Italy, (c)Department of Information Engineering and INFM, University of Padova, via Gradenigo, 6/B, 35131 Padova, Italy

L/PII.10 LOCAL STRUCTURE STUDY OF HIGHLY Mn DOPED GaN BY FLUORESCENCE X-RAY ABSORPTION

G. Martínez-Criado(a), A. Somogyi(a), M. Eickhoff(b) and M. Stutzmann(b), (a)European Synchrotron Radiation Facility, Experiments Division, 38043 Grenoble, France, (b)Walter Schottky Institut, Technische Universität München, 85748 Garching, Germany

L/PII.11 STUDY OF GaN AND InGaN FILMS GROWN BY METAL-ORGANIC VAPOR PHASE EPITAXY DEPOSITION

M.A. Henández-Fenollosa(a), B. Marí(a), M. Bosi(b), I. Marchi(b), R. Fornari(c), (a)Departament de Física Aplicada, Universitat Politècnica de València, 46071 València, Spain, (b)CNR-IMEM Institute, Area delle Scienze 37/a, 43100 Parma, Italy, (c)Institute for Crystal Growth, Max-Born.Str. 2, 12489 Berlin, Germany

L/PII.12 IMPLANTATION AND ANNEALING STUDIES OF RARE EARTH IMPLANTED AlN

K. Lorenz(a), E. Alves(a), T. Monteiro(b), M.J. Soares(b), (a)ITN, Estrada Nacional 10, 2686-953 Sacavém, Portugal, (b)Universidade de Aveiro, Dept. Física, 3810-193 Aveiro, Portugal

L/PII.13 CATHODOLUMINESCENCE SPECTROSCOPY AND WAVELENGTH DISPERSIVE X- RAY MEASUREMENTS ON Tm-IMPLANTED GaN

S. Dalmasso(a), R.W. Martin(a), P.R. Edwards(a), V. Katchkanov(a), K.P. O'Donnell(a), K. Lorenz(b), E. Alves(b), U. Wahl(b) and the RENiBEl network, (a)Department of Physics, University of Strathclyde, GLASGOW G4 0NG, U.K., (b)Dept. Física, Instituto Tecnológico e Nuclear, Sacavém 2685-953, Portugal

L/PII.14 OPTIMIZATION OF CHLORINE FRACTION IN AR/CL2 INDUCTIVELY COUPLED PLASMA FOR ETCHING GAN

S.A. Rizvi, P.D. Maguire, C.M.O. Mahony, NIBEC, University of Ulster, Northern Ireland, U.K., C.S. Corr and W.G. Graham, Department of Physics, Queens University, Northern Ireland, U.K.

L/PII.15 STUDY OF GaN AND InGaN FILMS GROWN BY METAL-ORGANIC VAPOR PHASE EPITAXY DEPOSITION

M.A. Henández-Fenollosa(a), B. Marí(a), M. Bosi(b), I. Marchi(b), R. Fornari(c), (a)Departament de Física Aplicada, Universitat Politècnica de València, 46071 València, Spain, (b)CNR-IMEM Institute, Area delle Scienze 37/a, 43100 Parma, Italy, (c)Institute for Crystal Growth, Max-Born.Str. 2, 12489 Berlin, Germany

L/PII.16 AlGaN/GaN SUPERLATTICE SELF-ASSEMBLING IN AN AlGaN LAYER GROWN ON SAPPHIRE BY METALORGANIC CHEMICAL VAPOUR DEPOSITION

S.Q. Zhou(a), M.F. Wu(a,d), A. Vantomme(a), B. Van Daele(b), E. Piscopiello(b), G. Van Tendeloo(b), B.S. Zhang(c), H. Yang(c), (a)Instituut voor Kern-en Stralingsfysica, University of Leuven, 3001 Leuven, Belgium, (b)Electron Microscopy for Materials Research (EMAT), University of Antwerp, 2020 Antwerp, Belgium, (c)National Research Center for Opto-Electronic Technology, Institute of Semiconductors, Chinese Academy of Sciences, Beijing 100083, People's Republic of China, (d)Department of Technical Physics, School of Physics, Peking University, Beijing 100871, People's Republic of China

L/PII.17 ARSENIC INCORPORATION IN GANAS AND ITS SURFACE MORPHOLOGY

Hyunseok Na, Euijoon Yoon, School of Materials Science and Engineering, Seoul National University, Seoul 151-742, Korea and Cheolsoo Sone, Yongjo Park, Samsung Advanced Institute of Technology, P.O. Box 111, Suwon 440-600, Korea

L/PII.18 INVESTIGATION OF IMPURITIES IN GAN BY RN-RBS AND R-NRA

Shude Yao(a), Zhi Pan(a), Chanjuan Sun(a), Lina Hou(a), Hongji Ma(a), Shengqiang Zhou(b), Qiang Zhao(b), Andre Vantomme(b), (a)Department of Technical Physics, School of Physics, Peking University, Beijing 100871, P.R. China, (b)Instituut voor Kern-en Stralingsfysica, Katholieke Universiteit Leuven, 3001 Leuven, Belgium

L/PII.19 EMISSION CHANNELING STUDIES OF Ce AND Pr IN GaN.

B. De Vries, A. Vantomme, Instituut voor Kern- en Stralingsfysica, K.U. Leuven, 3001 Leuven, Belgium, U. Wahl, Instituto Tecnológico e Nuclear, EN 10, 2685-953 Sacavém, Portugal, J.P. Araújo, Department of Physics and IFIMUP, University of Porto, 4169-007 Porto, Portugal, S. Pereira, Department of Physics, University of Strathclyde, G4 0NG Glasgow, U.K., J.G. Correia and the ISOLDE Collaboration, CERN-EP, 1211 Genève, Switzerland

L/PII.20 IN-SITU HIGH RESOLUTION X-RAY DIFFRACTION STUDIES ON THE THERMAL STABILITY OF MOCVD GROWN INGAN/GAN MQW STRUCTURES

A. Kharchenko, J.F. Woitok, PANalytical, PO Box 13, 7600 AA Almelo, The Netherlands

L/PII.21 OPTICAL STUDIES ON RED EMITTING WURTZITE INGAN EPILAYERS

M.R. Correia(a), S. Pereira(a,e), E. Pereira(a), R.A. Sá Ferreira(b), J. Frandon(c), E. Alves(d), I.M Watson(f), A. Morel(g), B. Gil(g), (a)Universidade de Aveiro, Dept. Física, Aveiro, Portugal, (b)Universidade de Aveiro, Dept. Física, CICECO, Aveiro, Portugal, (c)Laboratoire de Physique des Solides, UMR 5477 CNRS, Université Paul Sabatier, 31062-Toulouse Cedex 4, France, (d)Instituto Tecnológico e Nuclear,Dept. Física, Sacavém, Portugal, (e)Department of Physics, University of Strathclyde, Glasgow G4 0NG, Scotland, U.K., (f)Institute of Photonics, University of Strathclyde, Glasgow G4 0NW, U.K., (g)Groupe d'Études des Semiconducteurs-CNRS-Université Montpellier II, Case courier 074 34095 Montpellier Cedex 5, France

L/PII.22 INVESTIGATION OF TM IMPLANTATION DEFECTS IN GaN

T. Wojtowicz(a), P. Ruterana(a), K. Lorenz(b), U. Wahl(b), E. Alves(b), (a)SIFCOM UMR 6176, CNRS-ENSICAEN, 1450 Caen, France (b)Instituto Tecnológico e Nuclear, EN10, 2686-953 Sacavém, Portugal

L/PII.23 COMBINATION OF ELASTIC AND PLASTIC RELAXATION IN (Al,Ga)N/GaN HETEROSTRUCTURES
P. Vennégues, J.M. Bethoux, Z. Bougrioua, M. Azize, O. Tottereau and M. Leroux, CNRS-CRHEA, Rue B. Grégory, 06560 Valbonne, France

L/PII.24 QUANTITATIVE STRAIN ANALYSIS OF GAN/ALN QUANTUM DOT MULTILAYERS BY HRTEM
E. Sarigiannidou(a), A.D. Andreev(b), V. Chamard(c), C. Adelmann(a), B. Daudin(a) and J.L. Rouvière(a), (a)CEA-Grenoble, Département de Recherche Fondamentale sur la Matière Condensée, SP2M, 17 rue des Martyrs, 38054 Grenoble Cedex 9, France, (b)Department of Physics, University of Surrey, Guildford GU2 7XH, U.K., (c)LTPCM, 1130 rue de la piscine, 38402 Saint Martin d'Hères, France

L/PII.25 A STRUCTURAL INVESTIGATION OF LOW TEMPERATURE NUCLEATION OF GaN LAYERS ON (0001) SAPPHIRE
Y.B. Kwon(b), P. Ruterana(a), G. Nouet(a), C.C. Kim(b) and J.H. Je(b), (a)SIFCOM UMR 6176 CNRS-ENSICAEN, 6 Bd Maréchal Juin, 14050 Caen Cedex, France, (b)Department of Materials Science and Engineering, Pohang University of Science and Engineering, Pohang, Korea

L/PII.26 STRUCTURAL CHARACTERIZATION OF ER DOPED GAN LAYERS GROWN BY MBE
Y.B. Kwon(b), P. Ruterana(a), G. Nouet(a), C.C. Kim(b), J.H. Je(b), T. Wojtowicz(a), H. Ng(b) and P. Ruterana(a), (a)SIFCOM, UMR 6176, CNRS-ENSICAEN, 6, Bld Maréchal Juin, 1450 Caen, France, (b)Bell Laboratories, Lucent Technologies, 600 Mountain Avenue, Murray Hill NJ, USA

L/PII.27 CHARACTERISATION BY DEEP LEVEL TRANSIENT SPECTROSCOPY OF DEFECTS IN RARE EARTH-IONS IMPLANTED GAN
A. Colder, P. Marie, T. Wojtowicz, P. Ruterana, SIFCOM, CNRS UMR 6176, 6 boulevard Maréchal Juin. 14050 Caen Cedex, France, S. Eimer, L. Méchin, GREYC, CNRS UMR 6072, 6 boulevard Maréchal Juin, 14050 Caen Cedex, France, K. Lorenz, U. Wahl, E. Alves, Instituto Tecnológico e Nuclear, EN10, 2686-953 Sacavém, Portugal, M. Mamor, V. Matias, B. Pipeleers, A. Vantomme, Instituut voor Kern-en Stralingsfysica, KULeuven, 3001 Leuven, Belgium

L/PII.28 COMPARISON OF THE DEFECT STRUCTURE OF AN AS GROWN AND HIGH PRESSURE ANNEALED (AL,GA)N-LAYER SHOWING ORDERING
L. Kirste, N. Herres, Fraunhofer-Institut für Angewandte Festkörperphysik, Tullastr. 72, 79108 Freiburg, Germany, K.M. Pavlov, S.T. Mudie, School of Physics and Materials Engineering, Monash University, Victoria 3800, Australia, M. Albrecht, Institut für Werkstoffwissenschaften, Universität Erlangen-Nürnberg, Cauerstr. 6, 91058 Erlangen, Germany, M. Bockowski, High Pressure Research Centre, Polish Academy of Science, Sokolowska 29/37, 01-142 Warsaw, Poland

L/PII.29 COMPARISON OF GA-FACE AND N-FACE POLARITY GaN/AlN SUPERLATTICES BY HRTEM
E. Sarigiannidou, J.L. Rouvière, G. Radtke, P. Bayle-Guillemaud, E. Monroy, N. Gogneau and B Daudin, Département de Recherche Fondamentale sur la Matière Condensée, SP2M, 17 rue des Martyrs, 38054 Grenoble Cedex 9, France

L/PII.30 DLTS CHARACTERIZATION OF SILICON-NITRIDE PASSIVATED AlGaN/GaN HETEROSTRUCTURES
R. Mosca and E. Gombia, IMEM-CNR, Parco Area delle Scienze 37A, 43010 Fontanini - Parma, Italy, A. Passaseo and V. Tasco, NNL-INFM-Unità di Lecce-Dipartimento di Ingegneria dell'Innovazione, Università di Lecce, Via Arnesano, 73100 Lecce, Italy, M. Peroni and P. Romanini, AMS S.p.A., Via Tiburtina km 12,400, 00131 Rome, Italy

L/PII.31 ON THE DIFFERENCE BETWEEN POLYCRYSTALLINE AND EPITAXIAL InN
R. Wagner, V. Cimalla, I. Cimalla, G. Ecke, O. Ambacher, H. Romanus, L. Spieß, Center for Micro- and Nanotechnologies, Technical University Ilmenau, 98693 Ilmenau, Germany, K.S. Butcher, Macquarie University NSW 2109 Australia, H. Lu, W. Schaff, Department of Electrical and Computer Engineering, Cornell University, Ithaca NY, USA

L/PII.32 GROWTH AND CHARACTERISATION OF GAN WITH REDUCED DISLOCATION DENSITY
M.J. Kappers, R. Datta, M.E. Vickers, J.S. Barnard and C.J. Humphreys, Dept. of Materials Science and Metallurgy, University of Cambridge, Pembroke Street, Cambridge CB2 3QZ, U.K.

L/PII.33 MECHANICAL AND PHYSICOCHEMICAL PROPERTIES OF ALN THIN FILMS BY PULSED LASER DEPOSITION
C. Cibert(a), F. Tétard(b), P. Djemia(b), C. Champeaux(a), A. Catherinot(a), D. Tétard(a), (a)SPCTS, Faculté des Sciences, UMR no. 6638 CNRS, 123 Av. A. Thomas, 87060 Limoges Cedex, France, (b)LPMTM UPR 9001 CNRS, Institut Galilée, av JB Clément, 93430 Villetaneuse Cedex, France

L/PII.34 STUDY ON THE SAPPHIRE NITRIDATION TREATMENT WITH RF NITROGEN PLASMA
P. Sanguino, M. Niehus, R. Schwarz, Physics Department, Instituto Superior Técnico, Av. Rovisco Pais 1, 1049-001 Lisboa, Portugal, O.M.N.D. Teodoro, A.M.C. Moutinho, CEFITEC, Physics Department, New University of Lisbon, 2829-516 Caparica, Portugal

L/PII.35 EPITAXIAL GROWTH OF ZnSiN2 SINGLE-CRYSTALLINE FILMS ON SILICON AND SAPPHIRE SUBSTRATES
T. Cloitre, A. Sere, R.L. Aulombard, Groupe d'études des semiconducteurs, CC 074, Université Montpellier II, Place E.Bataillon, 34095 Montpellier Cedex 5, France

L/PII.36 MICROSTRUCTURAL ANALYSIS OF GAN FILMS GROWN BY TWO-STEP TECHNIQUE ON PATTERNED GAN AND SAPPHIRE
Hyung Koun Cho, Dong Chan Kim, and Jun Hee Lee, Department of Metallurgical Engineering, Dong-A University, Busan 604-714, Korea, Chang-Hee Hong and Hung-Seob Cheong Department of Semiconductor Science & Technology and Semiconductor Physics Research Center, Chonbuk National University, Chonju 561-756, Korea

L/PII.37 INFLUENCE OF BUFFER LAYERS ON MOVPE GROWN GaN ON Si(001)
F. Schulze, A. Dadgar J. Bläsing and A. Krost, Otto-von-Guericke-Universität Magdeburg, Fakultät für Naturwissenschaften, Germany

L/PII.38 MICROSTRUCTURAL ASSESSMENT OF InN-ON-GaN FILMS GROWN BY PLASMA-ASSISTED MBE

Ph. Komninou, Th. Kehagias, G.P. Dimitrakopulos, J. Kioseoglou, Th. Karakostas, Department of Physics, Aristotle University, 54124 Thessaloniki, Greece, E. Dimakis, A. Georgakilas, IESL, FORTH, Vassilika Vouton, Building of Physics Dept., Univ. Crete, P.O. Box 1527, 71110 Heraklion-Crete, Greece

L/PII.39 ELECTROLUMINESCENCE INVESTIGATIONS OF RARE EARTH DOPED GALLIUM NITRIDE

Georgios Halambalakis, Nicolas Rousseau, Roger Aulombard, Olivier Briot and RENIBEL Network, GES, Université Montpellier II, CC074, Montpellier, France

L/PII.40 MBE GROWTH OF AlN ON AlN- AND SiC-y

R. Boger(a), M. Fiederle(a), M. Bickermann(b), B. Epelbaum(b), A. Winnacker(b), (a)Freiburg Materials Research Centre, University of Freiburg, Germany, (b)Department of Materials Science, University of Erlangen-Nürnberg, Germany

L/PII.41 LATTICE PARAMETERS OF RELAXED WURTZITE INDIUM NITRIDE POWDER OBTAINED BY MOCVD

B. Maleyre, S. Ruffenach, O. Briot, Groupe d'Etude des Semiconducteurs, Université Montpellier II, Place E. Bataillon, 34095 Montpellier Cedex 05, A. Van Der Lee, Institut Européen des Membranes, Université Montpellier II, Place E. Bataillon, 34095 Montpellier Cedex 05, France

Thursday, May 27, 2004 Morning

Session VI: InN epitaxy and technology
Session chair: Y. Nanishi

L-VI.1 08:30 -Invited-
ECR-ASSISTED MBE GROWTH OF InN AND InGaN ALLOY ON Si(111) SUBSTRATES
Tokuo Yodo, Department of Electronics, Information and Communication Engineering, Osaka Institute of Technology, Japan

L-VI.2 09:00
THE ROLE OF NUCLEATION TEMPERATURE IN InN-ON-GaN GROWTH BY PLASMA-ASSISTED MBE
E. Dimakis, K. Tsagaraki, A. Adikimenakis, A. Georgakilas, Microelectronics Research Group (MRG), Institute of Electronic Structure and Laser (IESL), Foundation for Research and Technology-Hellas (FORTH), P.O. Box 1527, 71110 Heraklion-Crete, Greece and University of Crete, Physics Department, Heraklion-Crete, Greece

L-VI.3 09:15
GROWTH OF InN LAYERS BY MOVPE USING DIFFERENT STARTING SURFACES
B. Maleyre, S. Ruffenach, O. Briot, Groupe d'Etude des Semiconducteurs, Université Montpellier II, Place E. Bataillon, 34095 Montpellier Cedex 05, France, A. Vander Lee, Institut Européen des Membranes, Université Montpellier II, Place E. Bataillon, 34095 Montpellier Cedex 05, France

L-VI.4 09:30
CUBIC InN ON R-PLANE SAPPHIRE
V. Cimalla, I. Cimalla, G. Ecke, J. Pezoldt, O. Ambacher, Center for Micro- and Nanotechnologies, Technical University Ilmenau, 98693 Ilmenau, Germany, U. Kaiser, University of Jena, Institut für Festkörperphysik, 07743 Jena, Germany, H. Lu, W. Schaff, Department of Electrical and Computer Engineering, Cornell University, Ithaca NY, USA

L-VI.5 09:45
STRUCTURAL AND OPTICAL CHARACTERIZATION OF (INGA)N LAYERS GROWN BY MOCVD
P. Singh(a), M. Morales(a), M. Wojcek(b), A. Braud(b), J.F. Carlin(c), M. Ilegems(c), and P. Ruterana(a), (a)SIFCOM UMR 6176, CNRS-ENSICAEN, 6 Boulevard Maréchal Juin, 14050 Caen Cedex, France, (b)CIRIL, UMR, CNRS-CEA-ENSICAEN, 6, Boulevard Maréchal Juin, 14050 Caen Cedex, France, (c)IMO, EPFL, 1015 Ecublens, Switzeland

L-VI.6 10:00 -Invited-
EFFECT OF POLARITY ON RF-MBE VERY THICK AND HIGH QUALITY InN
K. Xu, Chiba University, Japan

10:30 **BREAK**

Session VII: InN optical studies
Session chair: C. Van de Walle

L-VII.1 11:00 -Invited-
MIE-RESONANCES, SURFACE STATES AND BAND GAP OF INN
T.V. Shubina, Ioffe Physico-Technical Institute, 194021 St. Petersburg, Russia

L-VII.2 11:30
FREE-TO-BOUND RADIATIVE RECOMBINATION IN HIGHLY CONDUCTING InN EPITAXIAL LAYERS
B. Arnaudov(a), T. Paskova(b), P.P. Paskov(b), B. Magnusson(b), E. Valcheva(b), B. Monemar(b), H. Lu(c), W.J. Shaff(c), H. Amano(d) and I. Akasaki(d), (a)Faculty of Physics, Sofia University, 5 J. Bourchier Blvd, 1164 Sofia, Bulgaria, (b)Dept. of Physics and Measurement Technology, Linkoping University, 581 81 Linkoping, Sweden, (c)Dept. of Electrical and Computer Engineering, Cornell University, Ithaca NY 14583, USA, (d)Dept. of Electrical and Electronic Engineering, Meijo University, I-501 Shiogamaguchi, Tempaku-ku, Nagoia 468, Japan

L-VII.3 11:45
CHARACTERISATION OF INDIUM NITRIDE SAMPLES GROWN BY RPE-CVD
K.S.A. Butcher, M. Wintrebert-Fouquet, P.P.–T. Chen, Physics Department, Macquarie University, Sydney NSW 2109, Australia, R.M. Perks, Cardiff School of Engineering, Cardiff University, Queen's Building, The Parade, P.O. Box 689, Cardiff, Wales CF157LR, U.K.

L-VII.4 12:00 -Invited-
RAMAN SCATTERING IN InN FILMS AND DOTS
C. Pinquier, **F. Demangeot** and J. Frandon, Laboratoire de Physique des Solides, IRSAMC,UMR 5477 CNRS, 118 Route de Narboone, Université Paul Sabatier, 31062 Toulouse cédex 04, France, O. Briot, B. Maleyre, S. Ruffenach-Clur and B. Gil, Groupe d'études des semiconducteurs,UMR 5650 CNRS, Place Eugène Bataillon, Université Montpellier II, 34095 Montpellier, France

L-VII.5 12:30
INFRARED ELLIPSOMETRY AND RAMAN STUDIES OF HEXAGONAL InN FILMS: CORRELATION BETWEEN STRAIN AND VIBRATIONAL PROPERTIES
V. Darakchieva(a), E. Valcheva(a), P.P. Paskov(a), T. Paskova(a), B. Monemar(a), M. Abrashev(b), M. Schubert(c), H. Lu(d) and W.J. Shaff(d), (a)IFM, Linköping Univeristy, 5831 83 Linkoping, Sweden, (b)Faculty of Physics, Sofia University, Sofia 1164, Bulgaria, (c)Fakultät für Physik and Geowissenschaften, Universität Leipzig, 04103 Leipzig, Germany, (d)Department of Electrical and Computer Engineering, Cornell University, Ithaca NY 14853, USA

12:45 **LUNCH**

Thursday, May 27, 2004 Afternoon

Session VIII: Nitride optical properties I
Session chair: A. Hoffmann

L-VIII.1 14:00 -Invited- SELF-ORGANIZED DOMAIN FORMATION IN LOW DISLOCATION DENSITY GAN
T. Riemann and J. Christen, Institute of Experimental Physics, Otto-von-Guericke-University, PO Box 4120, 39016 Magdeburg, Germany, B. Beaumont, J.-P.Faurie, and P. Gibart, Lumilog, 2720, Chemin de Saint Bernard, les Moulins I, 06220 Vallauris, France

L-VIII.2 14:30 SPONTANEOUS EMISSION ENHANCEMENT IN MICROPATTERNED GaN
M. Niehus, P. Sanguino, R. Schwarz, Dep. Physics, Inst.Sup.Técnico, Lisbon, Portugal, A. Fedorov, M. Martinho, Dep. Phys. Chemistry, Inst. Sup. Técnico, Lisbon, Portugal

L-VIII.3 14:45 STRUCTURAL AND OPTICAL PROPERTIES OF INGAN/GAN LAYERS BELOW AND ABOVE THE CRITICAL LAYER THICKNESS: THE INFLUENCE OF STRAIN ON THE EMISSION ENERGIES
S. Pereira(a,b) M.R. Correia(a), E. Pereira(a), K.P. O'Donnell(b), E. Alves(c), N. Franco(c), A.D. Sequeira(c), I.M. Watson(d), (a)Departamento de Física, Universidade de Aveiro, 3810-193 Aveiro, Portugal, (b)Department of Physics, University of Strathclyde, Glasgow G4 0NG, Scotland, U.K., (c)Departamento de Física, Instituto Tecnológico e Nuclear, 2685-953 Sacavém, Portugal, (d)Institute of Photonics, University of Strathclyde, Glasgow, U.K.

Session IX: Heavy ion doping in GaN I
Session chair: K.P. O'Donnell

L-IX.1 15:00 -Invited- MBE GROWTH AND MATERIALS PROPERTIES OF TRANSITION METAL IMPURITY DOPED III-V NITRIDES
Takafumi Yao(a,b), Hisao Makino(a), Jungjin Kim(b), Pingping Chen(b) and Meoung-Whan Cho(a), (a)CIR, Tohoku University, Aramaki-Aoba, Aoba-ku, Sendai 980-8578, Japan, (b)IMR, Tohoku. University, Katahira, Aoba-ku, Sendai 980-8577, Japan

L-IX.2 15:30 GAS SOURCE MBE GROWTH AND PHOTOLUMINESCENCE OF RARE EARTH DOPED GALLIUM NITRIDE
Georgios Halambalakis, Nicolas Rousseau, Roger Aulombard, Olivier Briot and RENIBEL Network, GES, Université Montpellier II, CC074, Montpellier, France

L-IX.3 15:45 AMORPHISATION OF GaN DURING PROCESSING WITH RARE EARTH ION BEAMS
K. Lorenz(a), U. Wahl(a), E. Alves(a), T. Wojtowicz(b), P. Ruterana(b), S. Ruffenach(c), O. Briot(c) and the RENiBEl network, (a)Instituto Tecnológico e Nuclear, EN10, 2686-953 Sacavém, Portugal, (b)LERMAT, FRE 2149, CNRS-ENSICAEN, 1450 Caen, France, (c)GES, Université de Montpellier II, 34095 Montpellier, France

16:00 **BREAK**

Session X: Heavy ion doping in GaN II
Session chair: E. Alves

L-X.1 16:30 LOCAL STRUCTURE OF Tm, Er AND Eu DOPED GaN BY EXTENDED X-RAY ABSORPTION FINE STRUCTURE (EXAFS) ANALYSIS
V. Katchkanov, K.P. O'Donnell, S. Dalmasso, R. Martin, Department of Physics, Strathclyde University, John Anderson Building Glasgow, U.K., J.F.W. Mosselmans, Synchrotron Radiation Department, CCLRC Daresbury Laboratory, Warrington, U.K.

L-X.2 16:45 HIGH RESOLUTION OPICAL SPECTROSCOPY OF ERBIUM CENTRES IN GAN AND 6H-SIC - ANALYSIS OF SYMMETRY
V. Glukhanyuk, A. Kozanecki, H. Przybylicska, 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

L-X.3 17:00 OPTICAL AND STRUCTURAL PROPERTIES OF RARE EARTH DOPED QUANTUM DOTS
T. Andreev(a), Y. Hori(a,b), X. Biquard(a), D. Jalabert(a), E. Monroy(a), M. Tanaka(b), O. Oda(b), Le Si Dang(a) and B. Daudin(a), (a)CEA/CNRS/UJF research group Nonophysique et Semiconducteurs,Départment de Recherche Fondamentale sur la Matière Condensée, SP2M, CEA-Grenoble, 17 rue des Martyrs, 38054 Grenoble cedex 9, France, (b)NGK Insulators, LTD 2-54 Sudacho, Mizuhoku, Nagoya, Japan

L-X.4 17:15 ERBIUM EXCITATION MECHANISMS IN Er-IMPLANTED GaN
M. Wojdak(a), A. Braud(a), J.L. Doualan(a), R. Moncorge(a), B. Pipeleers(b), A. Vantomme(b), (a)CIRIL - ISMRA, 6 Boulevard maréchal Juin, 14050 Caen cedex, France, (b)Instituut voor Kern-en Stralingsfysica, Departement Natuurkunde, Celestijnenlaan 200 D, 3001 Leuven, Belgium

L-X.5 17:30 TIME-RESOLVED PHOTOLUMINESCENCE AND EXCITATION SPECTROSCOPY OF THE 1.5 μm Er-RELATED BAND IN MBE-GROWN GaN LAYERS

I.Y. Izeddin Aguirre and T. Gregorkiewicz, Van der Waals—Zeeman Institute, University of Amsterdam, The Netherlands

L-X.6 17:45 INFLUENCE OF OXYGEN AND CARBON CO-IMPLANTATION ON THE LATTICE SITE OF Er IN GaN

B. De Vries, V. Matias, A. Vantomme, Instituut voor Kern- en Stralingsfysica, K.U. Leuven, 3001 Leuven, Belgium, U. Wahl, E.M.C. Rita, E. Alves, Instituto Tecnológico e Nuclear, EN 10, 2685-953 Sacavém, Portugal, A.M.L. Lopes, Departamento de Física and CICECO, Universidade de Aveiro, 3810-193 Aveiro, Portugal, J.G. Correia and the ISOLDE Collaboration, CERN-EP, 1211 Genève, Switzerland

L-X.7 18:00 ELECTRON INJECTION-INDUCED EFFECTS IN MAGNESIUM AND MANGANESE DOPED III-NITRIDES

Leonid Chernyak and William Burdett, Physics Department, University of Central Florida, Orlando FL 32816-2385, USA

Friday, May 28, 2004 Morning

Session XI: Nanostructures
Session chair: K.S. Butcher

L-XI.1 08:30 -Invited-
GROWTH OF InN DOTS BY MOVPE
S. Ruffenach, B. Maleyre, O.Briot, Groupe d'Etude des Semiconducteurs, Université Montpellier II CC074, Place E. Bataillon, 34095 Montpellier Cedex 5, France, A. Van der Lee, Institut Européen des Membranes, Université Montpellier II, Place E. Bataillon, 34095 Montpellier Cedex 5, France

L-XI.2 09:00 -Invited-
GROWTH AND OPTICAL PROPERTIES OF IN-RICH INGAN QUANTUM DOTS ON GaN AND AlGaN
Hee Jin Kim(a), Hyun Jin Kim(a), Hyunseok Na(a), Yoori Shin(a), Soon-Yong Kwon(a), Hui-Chan Seo(a), Keon-Hun Lee(a), Dong-Hyuk Kim(a), Ho-Sang Kwack(b), Ji-Young Kim(b), Yong Hoon Cho(b), and **Euijoon Yoon**(a) (a)School of Materials Science and Engineering, Seoul National University, Seoul 151-742, Korea, (b)Department of Physics, Chungbuk National University, Cheongju, Chungbuk 361-763, Korea

L-XI.3 09:30
GROWTH OF N-POLAR GaN/AlN(000-1)QUANTUM DOTS BY PLASMA-ASSISTED MOLECULAR BEAM EPITAXY
N. Gogneau(a), F. Fossard(a), E. Monroy(a), E. Sarigiannidou(a), J.L. Rouviere(a), S. Monnoye(b), H. Mank(b) and B. Daudin(a), (a)Equipe mixte CEA-CNRS-UJF «Nanophysique et Semiconducteurs», Département de Recherche Fondamentale sur la Matière Condensée, SP2M, CEA-Grenoble,17 rue des Martyrs, 38054 Grenoble cedex 9, France, (b)NOVASIC Savoie Technolac, Arche n°4, 73375 Le Bourget du Lac, France

L-XI.4 09:45 -Invited-
InN and GaN NANOWIRES AND RELATED NANOSTRUCTURES: GROWTH, STRUCTURE, AND THEIR PHOTOLUMINESCENCE AND CATHODOLUMINESCENCE PROPERTIES
L.C. Chen(a), R.H. Lan(b), W.M. Wang(c), C.W. Hsu(a), K.H. Chen(b) and C.C. Chen(b), (a)Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan, (b)Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan, (c)Department of Chemistry, National Taiwan Normal University, Taipei, Taiwan

L-XI.5 10:15
EXCITONIC RABI OSCILLATIONS IN A QUANTUM DOT: LOCAL FIELDS IMPACT
G. Ya. Slepyan, A.V. Magyarov, S.A. Maksimenko, Institute for Nuclear Problems, Belarus State University, Bobruiskaya 11, 220050 Minsk, Belarus, A. Hoffmann and D. Bimberg Institut für Festkörperphysik, Technische Universität Berlin, Hardenbergstr. 36, 10623 Berlin, Germany

10:30 **BREAK**

Session XII: Nitride optical properties II
Session chair: E. Yoon

L-XII.1 11:00 -Invited-
OPTICAL PROPERTIES OF InGaN QUANTUM DOTS
A. Hoffmann, M. Dworzak, T. Bartel, I.L. Krestnikov, R. Seguin, S. Rodt, A. Strittmatter, D. Bimberg, Institut für Festkörperphysik, Technische Universität Berlin, Hardenbergstraße 36, 10623 Berlin, Germany, J. Christen, Otto-von-Guericke Universität Magdeburg, Magdeburg, Germany

L-XII.2 11:30
CARRIER RECOMBINATION DYNAMICS AND OPTICAL PROPERTIES OF OVER-EXCITED GAN/ALN SELF-ORGANIZED QUANTUM DOTS
P. Lefebvre, S. Kalliakos, T. Bretagnon, T. Taliercio, and B. Gil, Groupe d'Etude des Semiconducteurs, CNRS, Université Montpellier II, Case courrier 074, 34095 Montpellier Cedex 5, France, N. Grandjean, B. Damilano, A. Dussaigne and J. Massies, Centre de Recherche sur l'Hétéro-Epitaxie et ses Applications, CNRS, Rue Bernard Grégory, 06560 Valbonne, France

L-XII.3 11:45 -Invited-
ABOUT SOME OPTICAL PROPERTIES OF (Al,Ga)N/GaN QUANTUM WELLS GROWN BY MOLECULAR BEAM EPITAXY
M. Leroux, F. Semond, F. Natali, B. Damilano, A. Dussaigne, N. Grandjean, A. LeLouarn, S. Vézian, J. Massies, Centre de Recherche sur l'Hétéro-Epitaxie et ses Applications-CNRS, Rue B.Grégory, 06560 Valbonne, France

L-XII.4 12:15
POLARISATION FIELD EFFECTS ON THE RECOMBINATION DYNAMICS IN LOW In-CONTENT InGaN MULTI-QUANTUM WELLS
F. Rossi(a), N. Armani(a), C. Ferrari(a), G. Salviati(a), L. Lazzarini(a), A. Vinattieri(b), M. Colocci(b), A. Reale(c), A. Di Carlo(c) and V. Grillo(d), (a)CNR-IMEM Institute, Parco Area delle Scienze 37/A, 43010 Fontanini, Parma, Italy (b)INFM, Dipartimento di Fisica, LENS, Università di Firenze, via Sansone 1, 50019 Sesto Fiorentino, Italy, (c)INFM, Dipartimento Ingegneria Elettronica, Università di Roma Tor Vergata, viale Politecnico 1, 00133 Roma, Italy, (d)INFM-TASC Area Scienze Park - Basovizza S.S. 14, Km 163.5, 34012 Trieste, Italy

L-XII.5 12:30 PHOTOREFLECTANCE STUDIES OF THE BUILT-IN ELECTRIC FIELD STRENGTH OF AlGaN/GaN HETEROSTRUCTURES GROWN ON Si(111)
A.T. Winzer(a), R. Goldhahn(a), G. Gobsch(a), A. Dadgar(b), A. Krtschil(b), H. Witte(b), A. Krost(b), (a)Institute of Physics, TU Ilmenau, 98684 Ilmenau, Germany, (b)Institute of Experimental Physics, Otto-von-Guericke University Magdeburg, 39016 Magdeburg, Germany

12:45 **LUNCH**

Friday, May 28, 2004 Afternoon

Session XIII: Devices I
Session chair: F. Demangeot

L-XIII.1 14:00 -Invited- INFLUENCE OF DEFECT DENSITY ON GaInN HIGH BRIGHTNESS LEDs
M. Peter, S. Miller, G. Bruederl, S. Bader, V. Haerle, OSRAM Opto-Semiconductors GmbH, Wernerwerkstrasse 2, 93049 Regensburg, Germany

L-XIII.2 14:30 -Invited- ON THE PERFORMANCE OF GAN BASED LASER-DIODES
S. Einfeldt, S. Figge, T. Böttcher, J. Dennemarck, C. Roder, A. Tausendfreund and D. Hommel, University of Bremen, Institute of Solid State Physics, P.O. Box 330440, 28334 Bremen, Germany

L-XIII.3 15:00 HIGH POWER 340 nm AlGaInN UV LEDS
S.-R. Jeon, M. Gherasimova, Z. Ren, G. Cui and J. Han, Department of Electrical Engineering Yale University, New Haven CT 06520, USA, H. Peng, E. Makarona, Y. He, Y.-K. Song and A.V. Nurmikko, Division of Engineering, Brown University, Providence RI 02912, USA, L. Zhou, W. Goetz and M. Krames Lumileds Lighting, LLC San Jose, CA 95131, USA

L-XIII.4 15:15 QUALIFICATION OF 8x4" MASS PRODUCTION MOCVD REACTORS FOR AlGaN/GaN HEMT APPLICATIONS THROUGH THE INVESTIGATION OF SINGLE LAYERS AND DEVICE STRUCTURES
A. Alam, O. Schoen, B. Schineller, M. Heuken, AIXTRON AG, Aachen, Germany

L-XIII.5 15:30 NITRIDE-BASED PHOTODETECTORS: FROM VISIBLE TO X-RAY MONITORING
J.L. Pau, C. Rivera, J. Pereiro, E. Muñoz, E. Calleja, ISOM and DIE, ETSIT-UPM, 28040 Madrid, Spain, U. Schühle, MPAE-Lindau, 37191 Katlenburg, Germany, E. Frayssinet, B. Beaumont, J.P. Faurie, P. Gibart, LUMILOG, 06220 Vallauris, France

L-XIII.6 15:45 PROPERTIES OF SCHOTTKY BARRIER PHOTODIODES BASED ON INGAN/GAN MQW STRUCTURES
C. Rivera, J.L. Pau, J. Pereiro, E. Muñoz, ISOM and Dpto. Ingeniería Electrónica, ETSI Telecomunicación, Univ. Politécnica de Madrid, Ciudad Universitaria, 28040 Madrid, Spain

16:00 **BREAK**

Session XIV: Devices II
Session chair: M. Peter

L-XIV.1 16:15 OPTIMIZATION OF TWO-DIMENSIONAL ELECTRON GASES AND I-V CHARACTERISTICS FOR ALGAN/GAN HEMT DEVICE
Yan Wang, Long Ma, Zhiping Yu, Lilin Tian,Institute of Microelectronics, Tsinghua University, Beijing 100084, P.R.China

L-XIV.2 16:30 GaN-BASED SURFACE ACOUSTIC WAVE FILTERS FOR WIRELESS COMMUNICATIONS
Simona Petroni(a), Chantal Combi(b), Benedetto Vigna(b), Giancarlo Tripoli(b), Massimo De Vittorio(c), Maria Teresa Todaro(c), Gianmichele Epifani(c), Roberto Cingolani(c) and Adriana Passaseo(c), (a)STMicroelectronics MBU, Via Arnesano S.N., 73100 Lecce, Italy, (b)STMicroelectronics MBU, Via Tolomeo 1, 20010 Cornaredo (MI), Italy, (c)National Nanotechnology Lab,Via Arnesano S.N.,73100 Lecce, Italy

L-XIV.3 16:45 ANISOTROPIC PROPAGATION OF SURFACE ACOUSTIC WAVES ON NITRIDE LAYERS
J. Pedrós(a), F. Calle(a), J. Grajal(a), R.J. Jiménez Riobóo(b), C. Prieto(b), M. Hermann(c), M. Eickhoff(c) and Z. Bougrioua(d), (a)ETSIT-UPM, 28040 Madrid, Spain, (b)ICMM-CSIC, 28049 Madrid, Spain, (c)WSI-TUM, 85748 Garching, Germany, (d)CRHEA-CNRS, 06560 Valbonne, France