



E-MRS 2007 Spring Meeting
Strasbourg, France - May 28th to June 1st, 2007

SYMPOSIUM A

**Sub-wavelength photonics throughout the spectrum:
Materials and Techniques**

Symposium Organizers:

Stefan Maier, University of Bath, U.K.

Bill Barnes, University of Exeter, U.K.

Serge Huant, Joseph Fourier University, Grenoble, France

Aaron Lewis, Hebrew University, Jerusalem, Israel

Ekmel Ozbay, Bilkent University, Ankara, Turkey



Monday, May 28, 2007

Advances in near-field microscopy : Stefan Maier

- A-1 1 09:00 **Infrared Scattering Near-field Microscopy**
Fritz Keilmann and Rainer Hillenbrand Max-Planck-Institut für Biochemie, 82152 Martinsried (München), Germany
- A-1 2 09:30 **Nanoscope probing of infrared near-field thermal emission**
Y. De Wilde, P.-A. Lemoine, F. Formanek, CNRS-UPR5, Labo. Optique - ESPCI, Paris, France J.J. Greffet, R. Carminati, J.P Mulet, Labo. EM2C, Ecole Centrale Paris, Chatenay-Malabry, France B. Gralak, Institut Fresnel, Faculté St Jérôme, Marseille, France K. Joulain, ENSMA, Futuroscope, France Y. Chen, Ecole Normale Supérieure Paris & Labo. Photonique et Nanostructures, Marcoussis, France
- A-1 3 10:00 **Polarization contrast THz-near-field imaging of anisotropic conductors**
Bruno Gompf, Nadine Gebert, Hanna Heer, Martin Dressel 1.Physikalisches Institut, Universität Stuttgart, Pfaffenwaldring 57, D-70550 Stuttgart, Germany
- A-1 4 10:15 **Scanning near-field optical lithography of poly(p-phenylene vinylene) (PPV)**
Dan Credginton, Oliver Fenwick and Franco Cacialli Department of Physics and Astronomy and London Centre for Nanotechnology, University College London, Gower Street, London WC1E 6BT, United Kingdom Andy Downes Institute for Materials & Processes, Kenneth Denbigh Building, The King's Buildings, Mayfield Road, Edinburgh EH9 3JL, United Kingdom
- A-1 5 10:30 **Nano aperture formation at the tip of metal covered near-field optical probes**
M. Chaigneau,a) G. Louarn,a) and T. M. Minea,b) a) Institut des Matériaux Jean Rouxel, UMR 6502, CNRS-Université de Nantes, BP 32229, 44322 Nantes, France b) Laboratoire de Physique des Gaz et Plasmas, UMR 8578, CNRS-Université Paris Sud, 91405 Orsay, France
- A-1 6 10:45 **Near-field Optical ZeptoLiter pH Sensing At & Above Surfaces**
Patricia Hamra* & Aaron Lewis,Dept. of Applied Physics,Selim and Rachel Benin School of Engr. and Computer Science, and The Interdisciplinary Center for Neural Computation, Hebrew University, Jerusalem, Israel, & *Nanonics Imaging Ltd, Jerusalem, Israel, and Chaim Sukenik, Dept. of Chemistry, Bar-Ilan University, Ramat Gan, Israel
- 11:00 **Coffee Break**

Field enhancement in imaging : David Richards

- A-2 1 11:30 **Imaging carbon nanostructures at sub-wavelength resolution through tip-enhanced Raman scattering**
Prabhat Verma Dept. of Applied Physics and Dept. of Frontier Biosciences, Osaka University, Osaka, Japan
- A-2 2 12:00 **Sub-wavelength resolution Raman microscopy of stress distribution in Si device structures**
V. Poborchii, T. Tada and T. Kanayama MIRAI, Advanced Semiconductor Research Center, National Institute of Advanced Industrial Science and Technology, AIST Tsukuba Central 4, Higashi, Tsukuba 305-8562, Japan
- A-2 3 12:15 **STM-mediated second harmonic generation of molecules in solution**
C. Royal, C. Fiorini-Debuisschert and F. Charra Service de Physique et Chimie des Surfaces et Interfaces, Commissariat à l'Energie Atomique, Centre de Saclay, F-91191 Gif-sur-Yvette Cedex, France
- A-2 4 12:30 **A nanometer-sized few femtosecond electron source at high repetition rates**
Christoph Lienau Institut für Physik, Carl von Ossietzky Universität, 26111 Oldenburg, Germany C. Ropers, D. R. Solli, C. P. Schulz, and T. Elsaesser Max-Born-Institut Berlin, 12489 Berlin, Germany
- 12:45 **Lunch**

Antennae and Emitters I : Thomas Klar

- A-3 1 14:00 **Resonant optical antennas**
Bert Hecht Nano-Optics and Bio-Photonics group Department of Experimental Physics 5 University of Würzburg Am Hubland 97074 Würzburg Germany
- A-3 2 14:30 **Scaling down antennas: An Optical Monopole Antenna for High Resolution Microscopy**
Tim Taminiou (1), Aude Lereu (1), Robert Moerland (2), Kobus Kuipers (2) and Niek van Hulst (1) (1) ICFO - Institut de Ciències Fotòniques - Av. Canal Olímpic, Castelldefels, 08860 Barcelona, Spain (2) Applied Optics Group, MESA+, University of Twente, 7500 AE Enschede, the Netherlands
- A-3 3 15:00 **MICROCAVITY-CONTROLLED FLUORESCENCE: A CHANCE FOR SINGLE ION SPECTROSCOPY?**
S. Bär, F. Schleifenbaum, D. Khoptyar, M. Steiner, A.J. Meixner Institute for Physical and Theoretical Chemistry, Universität Tübingen, Auf der Morgenstelle 8, 72076 Tübingen
- A-3 4 15:15 **Investigation of Spectral-Luminescent Properties of GeO₂ Films Co-Doped with Europium and Gold Nanoparticles**
O. Chukova, S. Nediiko, V. Scherbatskyi, Kyiv National Taras Shevchenko University, 2, block 1, acad. Hlushkov Ave., 03680, Ukraine, G. Malashkevich, Institute of Molecular and Atomic Physics of NAS of Belarus, 70 Nezalezhnasti Ave., 220072, Belarus Yu. Bokshits2, G. Shevchenko, Research Institute of Physicochemical Problems of Belarusian State University, 14 Leningradskaya St., 220080, Belarus
- 15:30 **Coffee Break**

Field enhancement in plasmonics : Wolfgang Fritzsche

- A-4 1 16:00 **Local-Field Enhancement and Plasmon Tuning in Ion Implantation AuAg Nanoplanets**
G. Pellegrini, G. Mattei, V. Bello, P. Mazzoldi INFM, Physics Department, University of Padova, Via Marzolo 8, 35131 Padova, Italy

Symposium A

- A-4 2 16:15 **Spectral degeneracy breaking in plasmon resonance of single metal nanoparticles by nanoscale near-field photopolymerization**
H. Ibn El Ahrach 1, R. Bachelot 1, O. Soppera 2, A. Vial 1, G. Léronde1 1, J. Plain 1 P. Royer 1 1. Laboratoire de Nanotechnologie et d'Instrumentation Optique, ICD CNRS FRE 2848, Université de Technologie de Troyes, 12 rue Marie Curie, BP 2060 10010 Troyes Cedex, France 2. Département de Photochimie Générale, Ecole Nationale Supérieure de Chimie de Mulhouse, CNRS UMR 7525, 3 rue Alfred Werner, F-68093 Mulhouse, France
- A-4 3 16:30 **Quasi-separation of variables approach for seeking the superfocusing modes of surface plasmon polaritons**
Kazuyoshi Kurihara, Akira Otomo, Kazuhiro Yamamoto, Junichi Takahara National Institute of Information and Communications Technology (NICT), Kobe 651-2492, Japan; Osaka University, Toyonaka 560-8531, Japan
- A-4 4 16:45 **Engineering Surface Plasmon Based Fiber Optic Sensors**
J.F. Muth, A. Dhawan ECE Dept. North Carolina State University

Tuesday, May 29, 2007

Antennae and Emitters II : Fritz Keilmann

- A-5 1 08:30 **Engineering the radiative properties of a single emitter using nanoantennas**
Vahid Sandoghdar Laboratory of Physical Chemistry, ETH Zurich, CH-8093 Zurich, Switzerland Tel: +41 44 633 4621, Email: vahid.sandoghdar@ethz.ch
- A-5 2 09:00 **Strong modification of the spontaneous emission rate of light emitters in the proximity to subwavelength nanoantennas**
J. Gomez Rivas and O.L Muskens FOM Institute for Atomic and Molecular Physics, AMOLF, c/o Philips Research Laboratories, High-Tech Campus 4, 5656 AE Eindhoven, The Netherlands
- A-5 3 09:30 **UV Emission mediated by cross coupling of surface plasmons from metal-alloy/semiconductor for the fabrication of top-emitting light emitting diodes**
D.Y. Lei and H.C. Ong Department of Physics, The Chinese University of Hong Kong
- A-5 4 09:45 **Sub-wavelength photonics with a single CdSe quantum dot as source of light.**
Y. Sonnefraud (1,2), A. Cuche (1,2), J.-F. Motte (1,2), S. Huang (1,2), M. Burnett (3), S.A. Maier (3), P. Reiss (4) (1): Spectrométrie Physique, UJF Grenoble and CNRS, St Martin d'Heres, France. (2): Institut Neel, CNRS Grenoble, France (3): Dept of Physics, University of Bath, United Kingdom (4) CEA-DRFMC, Grenoble, France
- 10:00 Coffee Break**

Near-field imaging for characterization : Aaron Lewis

- A-6 1 10:30 **Tip-enhanced fluorescence microscopy – quenching versus enhancement**
F. Culfaz, F. M. Huang, L. Eligal, N. Cade, F. Festy, and D. Richards Department of Physics, King's College London, Strand, London WC2R 2LS, UK
- A-6 2 11:00 **ON THE WAY TO NANO-RAMAN SPECTROSCOPY ON STRAINED SILICON CMOS STRUCTURES**
M. Hecker(a), P. Hermann(b), L. Zhu(c), J. Rinderknecht(a), Y. Ritz(a), E. Zschech(a), (a) AMD Saxony LLC & Co. KG, Wilschdorfer Landstrasse 101, D-01109 Dresden, Germany, (b) Fraunhofer-Center Nanoelektronische Technologien, Königsbrücker Straße 180, 01099 Dresden, Germany, (c) Gesellschaft für Wissens- und Technologietransfer, Chemnitz Strasse 48b, D-01187 Dresden, Germany
- A-6 3 11:30 **Near-field imaging of the evanescent electric field on the surface of a quantum cascade laser**
V. Moreau (1), P.A. Lemoine (2), M. Bahriz (1), Y. De Wilde (2), R. Colombelli (1), R. Perahia (3), O. Painter (3), L. Wilson (4), A. Krysa (5) (1) Institut d'Electronique Fondamentale- UMR8622 CNRS, Université Paris Sud, 91405 Orsay (France) (2) Laboratoire d'Optique Physique, ESPCI, 75005 Paris (France) (3) Department of Applied Physics, California Institute of Technology, Pasadena (USA) (4) Department of Physics and Astronomy, University of Sheffield, Sheffield (UK) (5) EPSRC National Centre for III-V Technologies, University of Sheffield, Sheffield (UK)
- A-6 4 11:45 **Imaging and manipulating confined electromagnetic fields in photonic crystal nanocavities with SNOM probes**
Benoit Cluzel, Loïc Lalouat, Frédéric de Fornel Groupe d'Optique de Champ Proche, ICB, CNRS, 9 av. Alain Savary, BP 47870, F-21078 DIJON. Philippe Velha, Emmanuel Picard, Emmanuel Hadji Laboratoire Silicium Nanotechnique Photonique et Structures, MINATEC, CEA, 17 rue des Martyrs, F-38054 GRENOBLE cedex 9, Callard, Christian Seassal, Xavier Letartre, Adel Rahmani INL, Ecole Centrale de Lyon, 36, Avenue Guy de Collongue 69134 ECULLY Philippe Lalanne Laboratoire Charles Fabry de l'Institut d'Optique, CNRS, Campus Polytechnique, RD128, 91127 Palaiseau. David Peyrade Laboratoire des Technologies de la Microélectronique, CNRS, 38054 GRENOBLE, France.
- A-6 5 12:00 **Scanning Near Field Optical Microscopy (SNOM) of Metal Nanostructures,**
T. Maletzky, S. Klein, H. Fuchs, U.C. Fischer E-mail: fischeu@nwz.uni-muenster.de Physikalisches Institut, Westfälische-Wilhelms-Universität Wilhelm Klemmstr.10 48149 Münster, Germany
- 12:30 Lunch**

Bioplasmonics : Bert Hecht

- A-7 1 14:00 **Metal-nanoparticle based molecular plasmonics for molecular manipulation and parallelized bioanalytics**
Wolfgang Fritzsche, Andrea Csaki, Andrea Steinbrück, Grit Festag, Frank Garwe1, Siegmund Schröter2, Anja Weise3, Karsten König4 Nanobiophotonics Department, Institute for Photonic Technology, PO Box 100239, 07702 Jena, Germany 1 Laser Diagnostics Department; 2 Micro Optics Department; 3 Friedrich-Schiller-University, Institute for Human Genetics and Anthropology, 07745 Jena, Germany; 4 JenLab GmbH, Schillerstr. 1, 07745 Jena, Germany
- A-7 2 14:30 **Molecule / Plasmon Interactions**
Thomas Klar, Ludwig-Maximilians-Universität München, Department of Physics and CeNS, Munich, Germany
- A-7 3 15:00 **DNA templated gold nanostructures for surface enhanced spectroscopy**
Sébastien Bidault and Albert Polman Center for Nanophotonics, FOM Institute AMOLF, Kruislaan 407, 1098SJ Amsterdam, The Netherlands
- A-7 4 15:15 **Subwavelength hole arrays and molecule-surface plasmon interactions**
J. Dintinger, C. Genet, et T.W. Ebbesen ISIS, Université Louis Pasteur, et CNRS, 8, allée G. Monge, BP 70028, 67000 Strasbourg, France
- A-7 5 15:30 **Nanoparticle optical properties and biomolecule detection: new challenges for theory**
George C. Schatz Northwestern University Evanston, IL 60208 USA
- A-7 6 16:00 **Photonic band gap materials in butterfly scales: a possible source of "blueprints"?**
L. P. Biró1, G. Molnár1, Zs. Bálint2, K. Kertész1, Z. Vértessy1, A. A. Koós1, Z. E. Horváth1, G. I. Márk1, L. Tapasztó1, O. Deparis3 and J. P. Vigneron3 1 Research Institute for Technical Physics and Materials Science, H-1525, Budapest, POB 49, Hungary, <http://www.nanotechnology.hu/> 2 Hungarian Natural History Museum, H-1088, Budapest, Baross utca 13, Hungary 3 Facultés Universitaires Notre Dame de la Paix, B-5000, Namur, Rue de Bruxelles 61, Belgium
- 16:15 Coffee Break**

Poster session : Bill Barnes

16:30 – 18:30

- A-8 1 **Localized surface plasmons in coupled gold nanoparticles studied by fluorescent dye probes**
G. Zorinians, W. L. Barnes University of Exeter, Stocker Road, Exeter, Devon, EX4 4QL, United Kingdom
- A-8 2 **Surface enhanced infrared absorption (SEIRA) on single gold nanowires**
F. Neubrech(a), S. Karim(b), T. Cornelius(b), R. Neumann(b) and A. Pucci(a), (a)Kirchhoff-Institut für Physik, Universität Heidelberg, Germany, (b)Gesellschaft fuer Schwerionenforschung (GSI) Darmstadt, Germany
- A-8 3 **Na-ion irradiated a-quartz: chemical epitaxy, luminescence and surface structure**
S. Gašiorek¹, K. P. Lieb¹, P. K. Sahoo^{1,2}, and T. Savajaara³, 1 II. Physikalisches Institut, Universität Göttingen, Friedrich-Hund-Platz 1, D-37077 Göttingen, Germany 2 Present address: Paul Scherrer Institut, CH-5232 Villigen PSI, Switzerland 3 Present address: Department of Physics, FI-40014 University of Jyväskylä, Finland
- A-8 4 **PLASMONIC PROPERTIES OF SILVER IN POLYMER**
J. Puišo^{1,2}, I. Prosyčėvas², A. Guobienė^{2,3}, S. Tamulevičius^{1,2}, A. Šilekaitė^{1,2} 1 Department of Physics, Kaunas University of Technology, Studentų g. 50, LT - 51368, Kaunas, Lithuania 2 Institute of Physical Electronics, Kaunas University of Technology, Savanorių pr. 271, LT-50131, Kaunas, Lithuania 3 International Studies Centre, Kaunas University of Technology, Mickevičiaus g. 37, LT - 44244, Kaunas, Lithuania
- A-8 5 **Rare-earth based fluorescent nanoparticles for use in NSOM active tips.**
A. Cuhe (1,2), Y. Sonnefraud (1,2), S. Huant (1,2), B. Masenelli (3), D. Nicolas (3), P. Mélinon (3). (1): Spectrometrie Physique, UJF Grenoble and CNRS, St Martin d'Herès, France. (2): Institut Neel, CNRS Grenoble, France (3): LPMC, Université de Lyon and CNRS, Villeurbanne, France
- A-8 6 **Nanosize range photonics throughout the over-wavelength of X-ray flux standing wave**
V.K. Egorov, E.V. Egorov IMT RAS, Chernogolovka, Moscow district, 142432 Russia
- A-8 7 **Superlensing as a way to 'long-focus' probe for near-field optics**
Eugene G. Bortchagovsky Institute of semiconductor physics of NAS of Ukraine
- A-8 8 **Extraordinary transmission through periodic subwavelength apertures in the cutoff wavelength region**
E. Laux, C. Genet, T.W. Ebbesen ISIS, Université Louis Pasteur, 8, allée G. Monge, 67000 Strasbourg, France Email : laux@isis-ulp.org
- A-8 9 **Influence of correlation between interface profiles of thin absorptive films on light transmission**
N.L. Dmitruk, A.V. Korovin Institute for Physics of Semiconductors, National Academy of Sciences of Ukraine 41 Nauki Prospect, Kiev 03028, Ukraine email: dmitruk@isp.kiev.ua
- A-8 10 **The damping effect on surface plasmon coupled light emission efficiency**
J. Li, D. Y. Lei and H. C. Ong Department of Physics, The Chinese University of Hong Kong
- A-8 11 **Fabrication of Near-Field Optical Probes Using Advanced Functional Thin Films for MEMS & NEMS Applications**
J. -S. Hyun, J. -S. Moon, J. -H. Park, J. W. Kim, and J. -H. Boo Department of Chemistry and Center for Advanced Plasma Surface Technology, Sungkyunkwan University, Suwon 440-746, Korea
- A-8 12 **Emission from the porphyrin energy transfer array excited by successive photons and its application to a photonic logic.**
Akira Otomo, Yukito Naitoh, Toshiya Kamikado, Kobe Advanced ICT Research Center, NICT
- A-8 13 **Strain Sensitive Photonic Natural Rubber**
Ketsuda Anuchai, Christoph Weder, Rathanawan Magaraphan*
- A-8 14 **Increasing the tunability range of localized plasmon resonances via gap-mode coupling in complex metal nanoparticles**
Mathew T. Burnett, Charles de Nobriga, Stefan A. Maier Centre for Photonics and Photonic Materials, Department of Physics, University of Bath, Bath BA2 7AY, UK Chizuko Dutta, Peter Nordlander Rice Quantum Institute, Rice University, Houston, Texas
- A-8 15 **Optical properties of 3D macroporous silicon structures**
M. Garín, T. Trifonov, A. Rodríguez, L.F. Marsal, R. Alcobilla Departament d'Enginyeria Electrònica, Universitat Politècnica de Catalunya, Edifici C4, Campus Nord, c/ Jordi Girona 1-3, 08034 Barcelona, Spain Departament d'Enginyeria Electrònica, Elèctrica i Automàtica, Universitat Rovira i Virgili, Avda. Països Catalans 26, 43007 Tarragona, Spain
- A-8 16 **THz surface plasmon polaritons on structured metal surfaces**
Christopher Williams, Steve R. Andrews, and S. A. Maier Department of Physics, University of Bath, Bath BA2 7AY, UK
- A-8 17 **Superfocusing of electromagnetic radiation throughout the spectrum using surface plasmon polaritons on conical structures**
Wei Ding, Steve R. Andrews, and S. A. Maier Department of Physics, University of Bath, Bath BA2 7AY, UK Antonio Fernandez-Dominguez and Francisco Garcia Vidal Universidad Autonoma de Madrid, Madrid, Spain Luis Martin Moreno Universidad de Zaragoza, Zaragoza, Spain
- A-8 18 **Optical properties of Ag nanoparticles self-assembled on a substrate: dielectric vs conductive**
Serhiy Malynych Ivan Franko National University of Lviv, 8 Kyryla & Methodia Str., Lviv 79005, Ukraine
- A-8 19 **Plasmonic properties of FIB milled metallic nanowires**
W. Andrew Murray, Baptiste Auguie and William L. Barnes
- A-8 20 **Tip Enhanced Raman Scattering of Strained Silicon with Single and Multiple Probes**
Aaron Lewis, Rimma Dekhter, Hesham Taha, Galina Fish & David Lewis, Nanonics Imaging Ltd., Jerusalem, Israel
- A-8 21 **Optimization of light to surface plasmon coupling by periodicity regulation on a pyramidal aperture probe**
D. W. Kim, Y. C. Kim, Om Suwal, V. Jha, M. Joo, S. S. Choi Department of Physics and Nanoscience, Sun Moon University, Tangjeong-myun, Ahsan-city, ChungNam 336-708, Korea M. J. Park Department of Physics, Nowon-Ku, Seoul, 139-799, Korea

- A-8 22 **Spectral plasmon characteristics of metal nanoparticles as probed by photoemission electron microscopy**
L. Douillard, F. Charra, C. Fiorini Commissariat à l'Energie Atomique Saclay Direction des Sciences de la Matière / Département de Recherche sur l'Etat Condensé, les Atomes et les Molécules / Service de Physique et Chimie des Surfaces et Interfaces, F-91191 Gif sur Yvette Cedex, France P. M. Adam, R. Bachelot, S. Kostcheev, G. Lerondel, M. Lamy de la Chapelle, P. Royer Laboratoire de Nanotechnologie et d'Instrumentation Optique, ICD CNRS FRE 2848, Université de Technologie de Troyes, 12 rue Marie-Curie, BP 2060, F-10010 Troyes Cedex, France
- A-8 23 **Analysis and control of photonic crystal microcavity optical modes**
Gaëlle Le Gac¹, Adel Rahmani¹, Christian Seassal¹, Emmanuel Picard², Emmanuel Hadji², Ségolène Callard¹ 1.Institut des Nanotechnologies de Lyon (INL), UMR CNRS 5270, Ecole Centrale de Lyon, 36 Avenue Guy de Collongue, F-69134 Ecully Cedex, France 2.DRFMC, CEA Grenoble, 17 Rue des martyrs, 38054 Grenoble cedex 9 France
- A-8 24 **The role of substrate reflections in near-field lithography and imaging**
Oliver Fenwick, Dan Credgington and Franco Cacialli Department of Physics and Astronomy and London Centre for Nanotechnology, University College London, Gower Street, London WC1E 6BT, United Kingdom
- A-8 25 **Estimation of the optical properties of photonic crystal type structures occurring on butterfly wing scales from their SEM images**
G. I. Márk, Z. Vértesy, K. Kertész, and L. P. Biró Research Institute for Technical Physics and Materials Science, H-1525 Budapest, P.O.B. 49, Hungary
- A-8 26 **Some features of optical properties of cadmium sulfide nanoparticles formed in volume of modified polybutadiene matrix**
M.B.Muradov*, T.Emrick**, A.A.Azizov*, G.M.Eyvazova* *Baku State University **National Center of Polymer Science, University of Massachusetts, Amherst, USA
- A-8 27 **Reduced effective mass of charge carrier in CdS nanoparticles**
M.B.Muradov Baku State University,Azerbaijan
- A-8 28 **TWO-DIMENSIONAL METAMATERIAL FOR MICROWAVE APPLICATIONS**
M. G. Banciu ¹, A. Ioachim ¹, N. Militaru ², G. Lojewski ² ¹ National Institute of Materials Physics, Măgurele, Romania ² University POLITEHNICA of Bucharest, Faculty of Electronics, Telecommunications and Information Technology, Bucharest, Romania
- A-8 29 **Polaritonic ellipsometry detection of thermally induced changes in thin gold nanoparticle films**
N. L. Dmitruk, O. S. Kondratenko, O. V. Fursenko, V. R. Romanyuk Institute for Physics of Semiconductor NAS of Ukraine, 41 prospect Nauki, Kiyv, 03028, Ukraine
- A-8 30
upgraded
- A-8 31 **Investigation of buried nanostructures with the scanning near-field optical microscope**
Soumaya Mauthoor, Oliver Fenwick and Franco Cacialli Department of Physics and Astronomy and London Centre for Nanotechnology, University College London, Gower Street, London WC1E 6BT, United Kingdom
- A-8 32 **The crystallographic damage in AlN capped GaN formed during rare earth ion implantation**
F. Gloux^{1*}, P. Ruterana¹, K. Lorenz² and E. Alves² ¹SIFCOM, UMR 6176, CNRS-ENSICAEN, 14050 Caen, France ²Instituto Tecnológico e Nuclear, EN10, 2686-953 Sacavém, Portugal * florence.gloux@ensicaen.fr
- A-8 33 **Visible and infrared emission from GaN: V thin films**
H. Touati, M. Souissi*, Z. Chine, A. Bchetnia, B. El jani Unité de Recherche sur les Hétéro-Epitaxies et Applications, Faculté des Sciences de Monastir 5000, Tunisie.
- A-8 34 **Near-field Characterization of Extraordinary Optical Transmission in Sub-Wavelength Aperture Arrays**
Michael Mrejen, Hesham Taha, Abraham Israel, Mila Palhan and Aaron Lewis The Hebrew University of Jerusalem, Jerusalem, Israel
- A-8 35 **Control of the optical properties of quantum dots by substrate functionalization: application to active NSOM tip**
J. Plain ¹, Y. Sonnefraud ², P. Viste ¹, P.M. Adam ¹, G. Lérondel ¹, S. Huant ² and P. Royer ¹ ¹ Laboratoire de Nanotechnologie et d'Instrumentation Optique, ICD, FRE 2848 CNRS and Université de technologie de Troyes 12 rue Marie Curie, 10010 Troyes, France ² Laboratoire de Spectrométrie Physique CNRS and Université Joseph Fourier Grenoble, BP 87, 38402 St Martin d'Hères, France
- A-8 36 **Achieving Super Resolution Optical Imaging**
Danielle Honigstein^[1], Aaron Lewis^[1] and Michael Werman ^[1] Departments of Applied Physics & Computer Science, Selim and Rachel Benin School of Engineering and Computer Science and ^[1]The Interdisciplinary Center for Neural Computation
- A-8 37 **Tuning fluorescence intensity using plasmonic nanostructures**
P. Viste, J. Plain, R. Jaffiol, P. M. Adam, M. Lamy de la Chapelle, J.-L. Bijeon, P. Royer Institut Charles Delaunay-Université de Technologie de Troyes, CNRS FRE 2848, Laboratoire de Nanotechnologie et d'Instrumentation Optique, 12 rue Marie Curie, BP 2060 – 10010 Troyes Cedex, France
- A-8 38 **A new method for producing chemically-etched optical tips for aperture NSOM**
Y. Sonnefraud (1,2), N. Chevalier (1,3), J.F. Motte (1,2), S. Huant (1,2), K. Karrai (4) ; (1) Lab. Spectrometrie Physique, UJF Grenoble & CNRS, St Martin d'Herès, France ; (2) : Institut Neel, CNRS, Grenoble, France ; (3): CEA-LETI, MINATEC, Grenoble, France; (4) : Ludwig-Maximilian University & CeNS, Munich, Germany
- A-8 39 **Surface plasmon in plane microscopy**
A. Drezet , A. Hohenau, A. Stepanov, D. Koller, B. Steinberger, A. Leitner, F. R. Aussenegg, J. R. Krenn
- A-8 40 **Molecule - Surface Plasmon Interactions in Hole Arrays : Enhanced Absorption, Refractive Index Changes and All Optical Switching**
J. Dintinger, C. Genet, et T.W. Ebbesen
- A-8 41 **Plasmon excitation in periodically nanostructured metal films**
Valerii Yasinskii, Evgenii Ivakin, Aleksandr Suchadolau, Alphiya Khairullina, AlekseiKokitz B.I. Stepanov Institute of physics of

Symposium A

NASB, Nezavisimosti Ave., 68, Minsk, Belarus

- A-8 42 **Fluorescence enhancement from nanoparticle arrays**
T. Ritman-Meer(a), N. Cade(a), F. Festy(a,b), M. Burnett(c), S. Maier(c), D. Richards(a) (a) Department of Physics, Kings College London, UK (b) The Dental Institute, Kings College London, UK (c) Department of Physics, University of Bath, UK
- A-8 43 **One-two dimensional metal/ferroelectric tunable nonlinear photonic crystalsdimensional**
E. Mishina, A. Zaitsev, N. Sherstyuk, A. Sigov Moscow State Institute of Radioengineering, Electronics and Automation, Prosp. Vernadskogo 78, 119454 Moscow, Russia
- A-8 44 **Light transmission through metal-hole arrays: shape and thickness dependence**
V.O.Valdner, E.D. Mishina, A.A. Zaitsev, N.E. Sherstyuk, A.I.Morosov Moscow State Institute of Radioengineering, Electronics and Automation, Prosp. Vernadskogo 78, 119454 Moscow, Russia
- A-8 45 **Ferroelectric/metal photonic-crystal switches**
N.Ilyin, M.Kuznetsov Moscow State Institute of Radioengineering, Electronics and Automation, Prosp. Vernadskogo 78, 119454 Moscow, Russia

Wednesday, May 30, 2007**08:30 EMRS PLENARY SESSION****12:30 Lunch****Plasmonics: Materials and Geometries : Stefan Maier**

- A-9 1 14:00 **Temperature- and strain-induced modulation of the plasmonic response in nanostructured materials**
R. Haglund, J. Suh, E. Donev, R. Lopez, L. Feldman Department of Physics and Astronomy, Vanderbilt University, Nashville TN 37235 USA J. Boneberg, I. Karakurt and P. Leiderer Fachbereich Physik, Universität Konstanz, D-78457 Konstanz, Germany
- A-9 2 14:30 **Nanometer thick antireflection coating for infrared light**
Bruno Gompf, Jürgen Beister, Toby Brandt, Jens Pfaum, and Martin Dressel Physikalisches Institut, Universität Stuttgart, Pfaffenwaldring 57, D-70550 Stuttgart, Germany
- A-9 3 14:45 **Comparison of the plasmonic response of gold nanoparticles arrays made by nanosphere lithography and electron beam lithography**
B. Auguie, A. Murray, W. L. Barnes, School of Physics, University of Exeter, UK
- A-9 4 15:00 **Plasmonic Detection of Local Order in Self-Assembling Metal Nanoparticle Materials**
D. S. Sebba and A. A. Lazarides Duke University Durham, NC 27708-0300 USA
- A-9 5 15:15 **Effective Optical Response of Noble Metal Nanoparticle Arrays: Multilayers and Disorder Effects**
Eleferios Lidorikis Department of Materials Science and Engineering, University of Ioannina Ioannina 45110, Greece
- A-9 6 15:30 **role of surface plasmon in Second Harmonic Generation from gold nanorods**
C. Hubert, L. Billot, P-M. Adam, R. Bachelot and P. Royer. Laboratoire de Nanotechnologie et d'Instrumentation Optique. Université de Technologie de Troyes, Institut Charles Delaunay, CNRS-FRE 2848. 12 rue Marie Curie, BP 2060, 10010 Troyes cedex (France) J. Grand Laboratoire ITODYS, Université Paris 7-Denis Diderot, CNRS UMR 7086, 1, rue Guy de la Brosse, F-75005 Paris, France D. Gindre, K. D. Dorkenoo, A. Fort Institut de Physique et Chimie des Matériaux de Strasbourg, Groupe d'Optique Non Linéaire et d'Optoélectronique, UMR-CNRS 23 rue du Loess, BP 43, F-67034 Strasbourg cedex 2 (France)
- A-9 7 15:45 **Core-shell Au nanorod assemblies:A route to new molecular plasmonic materials**
G. Wurtz¹, P. Evans¹, W. Hendren¹, R. Atkinson¹, D. O'Connor¹, W. Dickson¹, R. J. Pollard¹, W. Harrison², Christopher Bower³, and Anatoly V. Zayats¹. ¹ Centre for Nanostructured Media, IRCEP, The Queen's University of Belfast, Belfast BT7 1NN, UK ² Optical Molecular Imaging Group, Medical Science & Technology Center, Kodak Research Laboratories, Rochester, NY, USA ³ Kodak European Research, 332, Science Park, Milton Road, Cambridge, CB4 0WN, UK
- 16:00 Coffee Break**
- Surface plasmon polaritons : Bill Barnes**
- A-10 1 16:30 **The effect of damping on surface plasmon propagation**
A. Drezet, A. Hohenau, A. Stepanov, D. Koller, B. Steinberger, A. Leitner, F. R. Aussenegg, J. R. Krenn
- A-10 2 17:00 **Local density of states of surface plasmon polaritons on single-crystalline gold**
Martin Kuttge⁽¹⁾, Ernst Jan R. Vesseur⁽¹⁾, A. Femius Koenderink⁽¹⁾, Henri J. Lezec⁽²⁾, Harry A. Atwater⁽²⁾, Albert Polman⁽¹⁾ ⁽¹⁾ Center for Nanophotonics, FOM-Institute AMOLF, Amsterdam, The Netherlands ⁽²⁾ California Institute of Technology, Pasadena, CA
- A-10 3 17:15 **Controlling surface plasmon beams via micro-grating launchers and refractive micro-optical elements**
J.-Y. Laluet⁽¹⁾, E. Devaux⁽¹⁾, T. W. Ebbesen⁽¹⁾, C. Genet⁽¹⁾, J.-C. Weeber⁽²⁾, A. Dereux⁽²⁾ ⁽¹⁾ISIS, Université Louis Pasteur - CNRS (UMR7006) 8 allée Gaspard Monge, 67000 Strasbourg, France ⁽²⁾Laboratoire de Physique, Optique Submicronique, Université de Bourgogne - CNRS (UMR5027) 9 av. Alain Savary, 21000 Dijon, France
- A-10 4 17:30 **Perfectly conducting plasmonic surfaces and waveguides**
Alastair P. Hibbins, Matthew J. Lockyear, Ian R. Hooper and J. Roy Sambles Centre for Electromagnetic Material Research, School of Physics, University of Exeter EX4 4QL, United Kingdom
- 19:00 E-MRS RECEPTION PALAIS DES CONGRES**

Thursday, May 31, 2007

Metamaterials and Negative Index : Ekmel Ozbay

- A-11 1 08:30 **Metallic photonic crystals: superlattices, disorder effects, and ultrafast nonlinear phenomena**
Harald Giessen 4th Physics Institute, University of Stuttgart, Pfaffenwaldring 57, D-70550 Stuttgart, Germany
- A-11 2 09:00 **Invisibility devices: general relativity in electrical engineering**
Ulf Leonhardt and Thomas G Philbin University of St Andrews
- A-11 3 09:30 **Fishnet structure: the occurrence of left-handed behavior over a wide range of geometrical parameters**
Nikos Katsarakis, Maria Kafesaki, Irini Tsiapa, G. Kenanakis, Eleftherios N. Economou Institute of Electronic Structure and Laser (IESL), Heraklion, Crete, Greece Foundation for Research and Technology-Hellas (FORTH) Costas M. Soukoulis, Thomas Koschny FORTH-IESL, and Ames Laboratory, and Dept. of Physics and Astronomy, Iowa State University, Ames, Iowa
- A-11 4 09:45 **Abnormal light propagation in photonic crystal based components as probed by subwavelength optical complex field mapping**
I. Stefanon, S. Fasquel, S. Blaize, G. Léron del and P. Royer Laboratoire de Nanotechnologie et d'Instrumentation Optique / ICD CNRS FRE2848, Université de Technologie de Troyes, 10010 Troyes cedex, France A. Lupu, F. Gadot and A. De Lustrac and J. M. Lourtioz Institut d'Electronique Fondamentale, CNRS UMR 8622, Université Paris Sud, 91405 ORSAY Cedex, France G.-H. Duan Alcatel Thales III-V Lab, Route Départementale 128, 91767 Palaiseau cedex, France
- A-11 5 10:00 **Large Scale Nanofocusing Device Based on Negative Refraction Index Photonic Crystals: from Fabrication to Characterization**
Vito Mocella 1, Stefano Cabrini(2), Deirdre Olynick (2), Bruce Harteneck (2), Scott Dhuey (2) Principia Dardano (1), Ivo Rendina (1) (1) CNR - IMM, Sezione di Napoli Napoli, Italy (2) Molecular Foundry, Lawrence Berkeley National Laboratory, University of California, USA
- 10:15 **Coffee Break**
- Patterned surfaces and apertures : Richard Haglund**
- A-12 1 10:45 **Controlling strong electromagnetic fields at subwavelength scales**
J. Leperchec, P. Quémerais, A. Barbara and T. Lopez-Rios Institut Néel, CNRS, Grenoble, France
- A-12 2 11:15 **ENHANCED TRANSMISSION THROUGH PENROSE SUBWAVELENGTH HOLE ARRAYS**
F.Przybilla, C.Genet, and T.W. Ebbesen ISIS, Université Louis Pasteur-CNRS (UMR 7006), 8 Allée Gaspard Monge, 67000 Strasbourg, France
- A-12 3 11:30 **The effect of periodic groove shape on the light transmission through a nano-aperture on a pyramidal probe**
S. S. Choi, Y. C. Kim, Om Suwal, M. Joo, D. W. Kim Department of Physics and Nanoscience, Sun Moon University, Tangjeong-myun, Ahsan-city, ChungNam 336-708, Korea M. J. Park Department of Physics, Nowon-Ku, Seoul, 139-799, Korea
- Fabrication of patterned surfaces : Aurelien Drezet**
- A-13 1 11:45 **Fabrication of metal-dielectric plasmonic components with femtosecond lasers**
R. Kiyan, S. Passinger, A.L. Stepanov, C. Reinhardt, and B.N. Chichkov Laser Zentrum Hannover, Hollerithalle 8, D-30419 Hannover, Germany
- A-13 2 12:00 **Photochemical formation and characterization of Au-Ag bimetallic nanoparticles in water solutions and porous silica matrices.**
G. Krylova, G. Yashan, A. Eremenko, N. Smirnova Institute of Surface Chemistry, National Academy of Sciences, Ukraine 03164 Kyiv, General Naumov str., 17, e-mail: annaerem@voliacable.com
- A-13 3 12:15 **Plasmon particle arrays as programmable masks for nanolithography**
A. Femius Koenderink(1), René de Waele(1), Jesus V. Hernández(2), Francis Robicieux(2), Bart Noordam(3) and Albert Polman(1) (1) Center for Nanophotonics, FOM Institute AMOLF, Kruislaan 407, NL-1098SJ, Amsterdam, The Netherlands (2) Department of Physics, Auburn University, Auburn, Alabama 3684 (3) Van der Waals-Zeeman Institute, University of Amsterdam, Valckenierstraat 65, NL-1018XE, Amsterdam, The Netherlands
- A-13 4 12:30 **Anti-reflective properties of quartz surfaces patterned using block copolymer structures**
P.K. Sahoo¹, V. Auzelyte¹, Y. Ekinci, H.H. Solak¹, K.O. Stuen², C. Liu², P.F. Nealey², and C. David¹ ¹Laboratory for Micro- and Nanotechnology, Paul Scherrer Institut, CH-5232 Villigen-PSI, Switzerland ²Department of Chemical and Biological Engineering, University of Wisconsin-Madison, Madison, Wisconsin 53706-1691, USA
- 12:45 **Lunch**
- Forefronts of microscopy : Serge Huant**
- A-14 1 14:00 **ENERGY TRANSFER IN THE OPTICAL NEAR-FIELD**
Christian GIRARD CEMES/CNRS UPR 8011 29 rue Jeanne Marvig 31055 Toulouse Cedex 4 France
- A-14 2 14:30 **High-Resolution Subsurface Microscopy: Numerical Aperture Increasing Lens**
M. Selim Ünü, B. B. Goldberg, A. N. Vamivakas, and F. H. Koklu, Boston University, Department of Electrical and Computer Engineering, Center for Nanoscience and Nanobiotechnology, Boston, MA 02215, USA
- A-14 3 15:00 **Time-resolved scanning near field optical microscopy of organic micro-pillars**
D.G. Lidzey, A. M. Adawi, A. Cadby, A. M. Fox, D. Sanvitto, M. S. Skolnick Department of Physics and Astronomy, The University of Sheffield, Hicks Building, Hounsfield Road, Sheffield S3 7RH, United Kingdom W. C. Hung, A. Tahraoui, A. G. Cullis Department of Electronic and Electrical Engineering, The University of Sheffield, Mappin Street, Sheffield S1 3JD, United Kingdom
- A-14 4 15:15 **Near-field optical imaging and spectroscopy of fluorescein -doped nano-hybrids**
N. El Kork, D. Constantin, P. Moretti, B. Jacquier, O. Tillement, *C.Louis Université de Lyon, Université Lyon 1 Laboratoire de Physico-Chimie des Matériaux Luminescents, UMR CNRS 5620, 43, bd du 11 Novembre 1918, 69622 Villeurbanne Cedex, France * Nano-H, 23 Rue Royale 69001 Lyon
- 15:30 **Concluding remarks & a few of the future**
Stefan A Maier