



Strasbourg (France)

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

SYMPOSIUM J

Synthesis, characterisation and advanced
applications of amorphous carbon films

Symposium Organizers:

Grégory Abadias, University of Poitiers, France

Panos Patsalas, Aristotle University of Thessaloniki, Greece

Vasco Teixeira, University of Minho, Portugal

Arzum Erdem, Ege University, Izmir, Turkey

Konstantin Oskomov, Institute of High Current Electronics, Tomsk, Russia

Symposium Support

DGA, French Ministry of Defense
ACCES Program, French Ministry of Research
CNRS - GDR "Carbone"

Papers will be published in Thin Solid Films

E-MRS 2004 SPRING MEETING

SYMPOSIUM J

Tuesday, May 25, 2004

Morning

Session I: Growth methods & processes (1)

Session chairs: A.A. Voevodin, E. Bertran

- J-I.1** 09:00 -Invited PULSED LASER DEPOSITION OF CARBON: FROM DLC TO CLUSTER-ASSEMBLED FILMS
P.M. Ossi(a), C.E. Bottani(a) and A. Miotello(b), (a)INFN-Dip. Ingegneria Nucleare, Politecnico di Milano, via Ponzio 34-3, 20133 Milano, Italy, (b)INFN-Dip. Fisica, Università di Trento, 38050 Povo (TN), Italy
- J-I.2** 09:30 MAGNETRON SPUTTERING AMPLIFIED BY RADIOFREQUENCY INDUCTIVE PLASMA FOR CARBON AND CARBON NITRIDE DEPOSITION
P.Y. Tessier, B. Angleraud, M.P. Besland, A. Djouadi, Institut des Matériaux Jean Rouxel, UMR 6502, 2 rue de la Houssinière, B.P. 3222, 44322 Nantes cedex 3, France
- J-I.3** 09:50 RANGE AND MIXING DISTRIBUTIONS OF LOW-ENERGY CARBON IONS AS A BASE FOR SUBPLANTATION GROWTH MODELS
G. Dollinger, P. Neumaier, A. Bergmaier, L. Goergens, Physik Department E12, TU Muenchen, Garching, Germany, W. Eckstein, R. Fischer, Centre for Interdisciplinary Plasma Science, Max-Planck-Institut fuer Plasmaphysik, Garching, Germany, H. Hofsaess, H. Kroeger, C. Ronning, II.Physikalisches Institut, Universitaet Goettingen, Garching, Germany, H.U. Jaeger, Institut fuer Ionenstrahlphysik und Materialforschung, Forschungszentrum Rossendorf e.V, Dresden, Germany
- J-I.4** 10:10 VACUUM-ARC DEPOSITION OF AMORPHOUS HYDROGEN-FREE CARBON FILMS
I.I. Aksenov, V.E. Strel'nitskij, V.V. Vasylyev, D.Yu. Zaleskij, National Science Center "Kharkov Institute of Physics and Technology", Akademicheskaya Str. 1, 61108 Kharkov, Ukraine
- 10:30 **BREAK**

Session II: Surfaces & interfaces of carbon films

Session chairs: C. Godet, W. Kautek

- J-II.1** 10:50 -Invited SURFACE AND INTERFACE PROPERTIES OF AMORPHOUS CARBON LAYERS ON STIFF AND FLEXIBLE SUBSTRATES
S. Logothetidis, Aristotle University of Thessaloniki, Department of Physics, 54124 Thessaloniki, Greece
- J-II.2** 11:20 DYNAMIC ROUGHNESS OF TETRahEDRAL AMORPHOUS CARBON FILMS
J. Robertson(a), C. Casiraghi(a), A.C. Ferrari(a), R. Ohr(b), (a)Engineering Department, Cambridge University, Cambridge CB2 1PZ, U.K., (b)IBM STD, 55131 Mainz, Germany
- J-II.3** 11:40 STRUCTURING OF CARBON LAYERS IN SI-C-O SYSTEMS STUDIED ON ATOMIC SCALE
A. Hähnel and J. Woltersdorf, Max Planck Institute of Microstructure Physics, Weinberg 2, 06120 Halle, Germany
- J-II.4** 12:00 SURFACE PROPERTIES AND GROWTH OF DIAMOND-LIKE CARBON FILMS PREPARED USING CVD AND PVD METHODS
Dongping Liu, Günther Benstetter and Edgar Lodermeier, Electrical Engineering Department, University of Applied Sciences Deggendorf, Deggendorf 94469, Germany
- 12:20 **LUNCH**

Tuesday, May 25, 2004

Afternoon

Session III: Structure/properties correlation (1)

Session chairs: P. Scharff, R. Silva

- J-III.1** 14:00 -Invited STRUCTURAL AND ELECTRONIC PROPERTIES OF ECR PLASMA-DEPOSITED HYDROGENATED AMORPHOUS CARBON, CARBON NITRIDE AND CARBON OXIDE FILMS
C. Godet, LPICM, Ecole Polytechnique, 91128 Palaiseau, France
- J-III.2** 14:30 DIAMOND-LIKE CARBON FILMS DEPOSITED BY PULSED MAGNETRON SPUTTERING SYSTEM WITH ROTATING CATHODE
K.V. Oskomov(a), H.-G. Chun(b), N.S. Sochugov(a), S.V. Rabotkin(a), (a)Institute of High Current Electronics, Siberian Branch of the Russian Academy of Sciences, 4 Akademicheskoy Ave., Tomsk 634055, Russia, (b)School of Materials Science and Engineering, ReMM, University of Ulsan, Ulsan 680-749, Korea
- J-III.3** 14:50 CORRELATION BETWEEN THE SP² PHASE MICROSTRUCTURE AND PHYSICAL PROPERTIES OF CARBON NITRIDE
M. Tabbal, T.C. Christidis, S. Isber, Dept. of Physics, American University of Beirut, Lebanon and M.A. El-Khakani, P. Mérel, M. Chaker, INRS-EMT, Canada, A. Amassian and L. Martinu, École Polytechnique de Montréal, Canada
- J-III.4** 15:10 HRTEM AND SAED INVESTIGATION OF FULLERENE-LIKE CARBON NITRIDE THIN SOLID FILMS
Zs. Czigány, B. Veisz, Research Institute for Technical Physics and Materials Science, P.O.Box 49, 1525 Budapest, Hungary, J. Neidhardt, L. Hultman, Thin Film Physics Division, Department of Physics, IFM, Linköping University, 58183 Linköping, Sweden
- J-III.5** 15:30 CHEMICAL BONDING MODIFICATIONS OF NITROGENATED TETRAHEDRAL AMORPHOUS CARBON FILMS INDUCED BY RAPID THERMAL ANNEALING
R. McCann, P. Papakonstantinou, **S.S. Roy**, J. McLaughlin, NIBEC, School of Electrical and Mechanical Engineering, University of Ulster at Jordanstown, Newtownabbey, Co. Antrim BT37 OQB, N. Ireland, M.F. Bain, H.S. Gamble, Queens University of Belfast, School of Elect & Elect Engineering, Belfast, Antrim, N. Ireland
- 15:50 **BREAK**

Session IV: Structure/properties correlation (2)

Session chairs: J. Robertson, K. Oskomov

- J-IV.1** 16:20 MICROSTRUCTURE AND OPTOELECTRONIC INVESTIGATIONS OF CARBON NITRIDE FILMS DEPOSITED BY RF MAGNETRON SPUTTERING
A. Lagrini(a), **S. Charvet**(b), M. Benlahsen(b), C. Debiemme-Chouvy(a), C. Deslouis(a), H. Cachet(a), (a)UPR 15 CNRS « LISE », Univ . P. et M. Curie, 4 place Jussieu, 75252, Paris Cedex 5, France, (b)Laboratoire de Physique de la Matière Condensée, UPRES-EA 2081, Faculté des Sciences d'Amiens, 33 rue Saint Leu, 80039 Amiens Cedex 1, France
- J-IV.2** 16:40 EFFECT OF SUBSTRATE BIAS VOLTAGE AND SUBSTRATE ON THE STRUCTURAL PROPERTIES OF AMORPHOUS CARBON FILMS DEPOSITED BY UNBALANCED MAGNETRON SPUTTERING METHOD
I. Ahmad, **S.S. Roy**, P. Maguire, P. Papakonstantinou, J. McLaughlin, NIBEC, University of Ulster, Jordanstown, Northern Ireland, U.K.
- J-IV.3** 17:00 EFFECTS OF SUBSTRATE TEMPERATURE ON NANOCRYSTALLINE DIAMOND GROWTH : AN IN-SITU OPTICAL STUDY USING PYROMETRIC INTERFEROMETRY
P. Bruno, IMIP-CNR Sezione di Bari w/o Dipartimento di Chimica, Università di Bari, Via Orabona 4, 70126 Bari, Italy, visiting scholar at LIMHP, F. Mohasseb, **F. Bénédic**, F. Silva, K. Hassouni, Laboratoire d'Ingénierie des Matériaux et des Hautes Pressions, UPR 1311 CNRS, Université Paris Nord, 93430 Villetaneuse, France
- J-IV.4** 17:20 DIAMOND-LIKE CARBON PROTECTIVE ANTIREFLECTION COATING FOR SOLAR CELL
Won Seok Choi(a,b), Youngsuk Jeon(a,b), Do Young Kim(a), Junsin Yi(a) and Byungyou Hong(a,b), (a)School of Information and Communication Engineering, Sungkyunkwan University, Suwon 440-746, Korea, (b)Center for Advanced Plasma Surface Technology, Sungkyunkwan University, Suwon 440-746, Korea
- 17:40 – 19:40 **POSTER SESSION I**

- J/PI.01** GENERATION OF THE PRETILT ANGLES IN NEMATIC LIQUID CRYSTAL ON THE a-C:H THIN FILMS BY ION BEAM ALIGNMENT METHOD USING THIN PLASTIC SUBSTRATES
Jeong-Yeon Hwang, Chang-Joon Park and Dae-Shik Seo, Department of Electrical & Electronic Engineering (C-724), College of Engineering, Yonsei University, 134 Shinchon-dong, Seodaemoon-ku, Seoul 120-749, Korea, Kyung-Chan Kim, Han-Jin Ahn, and Hong-Koo Baik, Department of metallurgical Engineering, College of Engineering, Yonsei University, 134 Shinchon-dong, Seodaemoon-ku, Seoul 120-749, Korea
- J/PI.02** ANALYSIS OF THE STRUCTURE AND PROPERTIES OF DIAMOND-LIKE a-C:H FILMS OBTAINED FROM PURE METHANE BY RF PACVD METHOD ON MEDICAL STEEL AISI 316L
Jerzy Smolik, Jan Walkowicz, Institute for Terotechnology, ul.Pulaskiego 6/10, 26-600 Radom, Poland
- J/PI.03** TETRAHEDRAL AMORPHOUS CARBON FILMS DEPOSITED BY FILTERED CATHODIC VACUUM ARC TECHNIQUE IN THE PRESENCE OF ARGON OR OXYGEN
Z.C. Wang, J.P. Quinn, J.A. McLaughlin, P. Maguire, NIBEC, School of Electrical and Mechanical Engineering, University of Ulster at Jordanstown, Shore Road, Newtownabbey, Co. Antrim BT37 0QB, Northern Ireland, U.K.
- J/PI.04** TIME-RESOLVED ELECTRICAL MEASUREMENTS OF A PULSED-DC METHANE DISCHARGE USED IN DIAMOND-LIKE CARBON FILMS PRODUCTION
C. Corbella(a), M.C.Polo(a), G.Oncins(b), E. Pascual(a), J.L. Andújar(a), E. Bertran(a), (a)Departament de Física Aplicada i Òptica, Universitat de Barcelona, Av.Diagonal 647, 08028, Barcelona, Spain, (b)Serveis Científic-Tècnics, Universitat de Barcelona, PCB, Josep Samitier 1-5, 08028 Barcelona, Spain
- J/PI.05** STRUCTURAL STABILITY OF RAPIDLY THERMALLY ANNEALED TETRAHEDRAL AMORPHOUS CARBON FILMS BY SYNCHROTRON-BASED SPECTROSCOPES.
G.A. Abbas, P. Papakonstantinou, S. Roy, J. McLaughlin, NIBEC, University of Ulster, BT 37 0QB, U.K., Jacob Filik, School of Chemistry, University of Bristol, BS6 1TS, U.K. and MF Bain, Queen's University Belfast, U.K.
- J/PI.06** EFFECTS OF ENERGETIC SPECIES DURING THE GROWTH OF NITROGENATED AMORPHOUS CARBON THIN FILMS ON THEIR NANOMECHANICAL PROPERTIES
C. Charitidis, P. Patsalas, S. Logothetidis, Department of Physics, Aristotle University of Thessaloniki, 54124 Thessaloniki, Greece
- J/PI.07** SILICON-CONTAINING a-C:H FILMS PREPARED BY RF PLASMA BEAM CVD
A. Tóth, M. Mohai, T. Ujvári, I. Bertóti, Research Laboratory of Materials and Environmental Chemistry, Chemical Research Center, Hungarian Academy of Sciences, 1525 Budapest, P.O. Box 17, Hungary
- J/PI.08** SiO_x- AND SiN_x-CONTAINING a-C:H FILMS PREPARED BY RF PLASMA BEAM CVD
A. Tóth, M. Mohai, T. Ujvári, I. Bertóti Research Laboratory of Materials and Environmental Chemistry, Chemical Research Center, Hungarian Academy of Sciences, 1525 Budapest, P. O. Box 17, Hungary
- J/PI.09** CHARACTERIZATIONS OF CN_x THIN FILMS MADE BY IONIZED PHYSICAL VAPOR DEPOSITION
F. Tétard(a), Ph. Djemia(a), M.P. Besland(b), P.Y. Tessier(b), B. Angleraud(b), (a)LPMTM UPR 9001 CNRS, Institut Galilée, av JB Clément, 93430 Villetaneuse Cedex, France, (b)LPCM, Institut des Matériaux J. Rouxel UMR 6502-CNRS, 2 rue de la Houssinière, 44322 Nantes, France
- J/PI.10** FORMATION OF DIAMOND AND GPAPHITE LIKE LAYERS BY E-BEAM AND LASER ABLATION, AND THEIR APPLICATIONS
G. Kovach, G. Peto, A. Karacs, G. Perentzis, E.E. Horopanitis and L. Papadimitriou, Research Institute for Technical Phys. and Matls. Sciences and Aristotle University of Thessaloniki, Department of Physics, Greece
- J/PI.11** METHOD OF DEPOSITION OF DIAMOND-LIKE CARBON FILMS Kh.S. Martirosyan, R.S. Barseghyan, V.M. Aroutiounian, Z.N. Adamyan, Dept. of Physics of Semiconductors, YSU, 1 A.Manoogyan st., 375025 Yerevan, Armenia
- J/PI.12** STRUCTURAL REARRANGEMENT OF CARBON TARGET AT ION IMPLANTATION: THE THERMOELASTIC PEAK CONCEPT
A.I. Kalinichenko, Kharkov National University, P.O. Box 60, 61052 Kharkov, Ukraine and V.E. Strel'nitskij, National Science Center «Kharkov Institute of Physics and Technology», Akademicheskaya Str., 1, 61108, Kharkov, Ukraine
- J/PI.13** DUAL FCVA-PECVD DEPOSITION FOR DLC FILMS
C. Meunier, Institut FEMTO UMR 6174 CNRS, dpt CREST, Montbéliard, France, F. Munnik, J. Stauffer, E. Germann, S. Mikhailov, Centre d'Analyses par Faisceau Ionique, Le Locle, Switzerland
- J/PI.14** IMPROVEMENT IN GAS BARRIER PERFORMANCE AND OPTICAL PROPERTIES OF a-C:H FILMS ON PET SUBSTRATES BY SILICON INCORPORATION
G.A. Abbas, J.A. McLaughlin, P. Papakonstantinou, NIBEC, University of Ulster, BT 37 0QB, U.K., Jacob Filik, School of Chemistry, University of Bristol, BS6 1TS Bristol, U.K. and E. Harkin-Jones, Polymer Processing Research Centre, Queen's University Belfast, U.K.
- J/PI.15** RAMAN CHARACTERIZATION OF NANOPOROUS CARBON OBTAINED FROM CARBIDES BY DEEP CHEMICAL ETCHING
M.Ya. Valakh, I.B. Yanchuk, V. Lashkaryov Institute of Semiconductor Physics NAS Ukraine, Prospect Nauki 45, 03028 Kiev, Ukraine, E.A. Smorgonskaya, A.M. Danishevskii, Ioffe Physico-Technical Institute RAS, 194021 St.Petersburg, Russia, S.K. Gordeev, Central Scientific Research Institute of Materials, 121014 St.Petersburg, Russia

- J/PI.16** RAMAN SCATTERING OF MEDICAL GRADE POLYETHYLENE TREATED BY PLASMA IMMERSION ION IMPLANTATION
M. Veres, I. Pócsik, M. Koós, Research Institute for Solid State Physics and Optics, 1525 Budapest, P.O. Box 49, Hungary, A. Tóth, M. Mohai, I. Bertóti Research Institute of Materials and Environmental Chemistry, Chemical Research Center, 1525 Budapest, P.O. Box 17, Hungary
- J/PI.17** RAMAN SCATTERING OF ULTRA-HIGH MOLECULAR WEIGHT POLYETHYLENE TREATED BY PLASMA IMMERSION ION IMPLANTATION
M. Veres, I. Pócsik, M. Koós, Research Institute for Solid State Physics and Optics, 1525 Budapest, P.O. Box 49, Hungary, A. Tóth, M. Mohai, I. Bertóti, Research Institute of Materials and Environmental Chemistry, Chemical Research Center, 1525 Budapest, P.O. Box 17, Hungary
- J/PI.18** XPS CHARACTERIZATION OF DIAMOND-LIKE CARBON FILMS DEPOSITED BY RF (13.56MHZ) METHANE GAS PLASMA
M. Ouchabane(a), M. Aoucher(b), A. Sekkal(a), K. Henda(a) and H. Lahmar(a), (a)Centre de Développement des Technologies Avancées Division des milieux ionisés & Lasers, Cité du 20 Août 1956, BP 17, Baba Hassan, Alger, Algérie, (b)Laboratoire de physique des matériaux, Equipe couches minces et semiconducteurs, Faculté de Physique, USTHB, BP32, El Alia, 16111 Bab-ezzouar, Alger, Algérie
- J/PI.19** CHARACTERIZATION OF GRAPHIC-BLACK COATING IN THE INFRARED RANGE FOR ABSOLUTE PYROELECTRIC DETECTORS
I. Mellouki, N. Yacoubi and O. Touayar, INSAT, Ezzahra, Tunisia
- J/PI.20** NEXAFS STUDY OF THE TEMPERATURE EFFECT ON THE GROWTH OF HYDROGENATED AMORPHOUS CARBON NITRIDE FILMS
T.M. Minea(a), E. Marino(b), V. Fernandez(a), P. Parent(c), C. Laffon(c), P.Y. Tessier(a), B. Angleraud(a), B. Bouchet-Fabre(b,c), (a)LPCM, Institut des Matériaux Jean Rouxel, 44322 Nantes cedex3, France, (b)LFP, SPAM, CEA- Saclay, 91191 Gif sur Yvette cedex, France, (c)LURE, BAT 209A, Université Paris-Sud, B.P. 38, 91898 Orsay cedex, France
- J/PI.21** AGEING OF PLASMA DEPOSITED CARBON LAYERS: THICKNESS AND MATERIAL STRUCTURE EFFECT
R. Clergereaux(a), D. Escaich(a), S. Martin(b), F. Gaillard(b) and P. Raynaud(a), (a)LGET, Material and Plasma Processes Department, Toulouse, France, (b)CEA-DTEN, Grenoble, France
- J/PI.22** PHOTOLUMINESCENCE OF ULTRA-HIGH MOLECULAR WEIGHT POLYETHYLENE MODIFIED BY FAST ATOM BOMBARDMENT
S. Tóth, M. Füle, M. Veres, M. Koós, Research Institute for Solid State Physics and Optics, 1525 Budapest, P.O. Box 49, Hungary, A. Tóth, T. Ujvári, I. Bertóti, Research Institute of Materials and Environmental Chemistry, Chemical Research Center, 1525 Budapest, P.O. Box 17, Hungary
- J/PI.23** SILICON INCORPORATED DIAMOND-LIKE COATINGS FOR Si₃N₄ MECHANICAL SEALS
S.S. Camargo Jr.(a), J. Gomes(b), J.M. Carrapichano(c) and C.A. Achete(a), (a)Engenharia Metalúrgica e de Materiais, Universidade Federal do Rio de Janeiro, PO Box 68505, CEP 21945-970, Rio de Janeiro, Brazil, (b)Departamento de Engenharia Mecânica, Universidade do Minho, Guimarães, Portugal, (c)Universidade de Coimbra, Coimbra, Portugal
- J/PI.24** ION BEAM DEPOSITION OF THE DIAMOND LIKE CARBON FILMS ON STEEL SUBSTRATE
V. Kopustinskas, S. Meskinis, S. Tamulevicius, Institute of Physical Electronics, Kaunas University of Technology, Savanoriu 271, 3009 Kaunas, Lithuania
- J/PI.25** CHARACTERIZATION OF AMORPHOUS CARBON NITRIDE PARTICLES AND COATINGS OBTAINED IN A 13.56 MHZ RF METHANE/NITROGEN PLASMA
J. Pereira, I. Geraud-Grenier, V. Massereau-Guilbaud and A. Plain, LASEP, Faculté des Sciences, Université d'Orléans, Site de Bourges, rue G. Berger, BP 4043, 18028 Bourges Cedex, France
- J/PI.26** EFFECT OF AIR POST CONTAMINATION ON MECHANICAL PROPERTIES OF AMORPHOUS CARBON NITRIDE THIN FILMS
M. Lejeune(a), M. Benlahsen(a) and P. Lemoine(b), (a)Laboratoire de Physique de la Matière Condensée, Faculté des Sciences d'Amiens, 33 rue Saint Leu, 80039 Amiens Cedex, France, (b)NIBEC, School of Electrical and Mechanical Engineering, University of Ulster, Shore Road, Newtownabbey, County Antrim BT37 0QB, Northern Ireland, U.K.
- J/PI.27** DEPOSITION OF WEAR-RESISTANT AMORPHOUS HYDROCARBON COATINGS ON PLASTICS BY USE OF HALL-CURRENT CLOSED-DRIFT ION SOURCE
K.V. Oskomov, N.S. Sochugov, Institute of High Current Electronics, Siberian Branch of the Russian Academy of Sciences, 4 Akademicheskoy Ave., 634055 Tomsk, Russia
- J/PI.28** THE USE OF RUTHERFORD BACKSCATTERING FOR STUDY OF MECHANISM OF DLC COATING WEAR
V.B. Vykhodets, I.Sh. Trakhtenberg, T.E. Kurennykh, A.B. Vladimirov and V.A. Yugov, Institute of Metal Physics, Ural Branch Russian Academy of Sciences, Ekaterinburg, Russia
- J/PI.29** STRUCTURAL CHARACTERIZATION AND MECHANICAL PROPERTIES OF HYDROGENATED CARBON FILMS DEPOSITED BY PECVD IN METHANE PLASMAS DILUTED BY NOBLE GASES
G. Capote, F.L. Freire Jr., Departamento de Física, Pontificia Universidade Católica do Rio de Janeiro, Cx. Postal 3807, Rio de Janeiro, RJ 22453-970, Brazil, G. Mariotto, Istituto Nazionale per la Fisica della Materia and Dipartimento di Fisica, Università di Trento, 38050 Povo TN, Italy

- J/PI.30** NANOCRYSTALLINE DIAMOND COATING OF SILICON NITRIDE CERAMICS BY MICROWAVE PLASMA ASSISTED CVD
M.S. Amaral, F.J. Oliveira, R.F. Silva, Glass and Ceramics Engineering Department, CICECO, University of Aveiro, Portugal, F. Mohasseb, F. Bénédic, A. Gicquel, Laboratoire d'Ingénierie des Matériaux et des Hautes Pressions, UPR 1311 CNRS, Université Paris Nord, 93430 Villetaneuse, France
- J/PI.31** APPLICATION OF ALUMINA AND TA-C THIN FILMS DEPOSITED BY PLD AT ROOM TEMPERATURE IN MICRO ELECTROMECHANICAL SYSTEMS
J.C. Orlianges, A. Catherinot, C. Champeaux, SPCTS UMR CNRS, Limoges, France, P. Blondy, D. Mercier, A. Pothier, IRCOM UMR CNRS, Limoges, France, B. Angleraud, LPCM-IMN CNRS, Nantes, France, M.I. de Barros Bouchet, Ecole Centrale de Lyon, France
- J/PI.32** EFFECT OF ELECTRONIC STRUCTURE AND HARDENING MECHANISM ON SILICON-DOPED AND UNDOPED DIAMOND LIKE CARBON FILMS DEPOSITED BY PECVD METHOD
S.C. Ray(a), T.I.T. Okpalugo(b), M. García-Hernández(a), H.M. Tsai(c), J.W. Chiou(c), W.F. Pong(c), P. Papakonstantinou(b), J.A. McLaughlin(b) and W.J. Wang(d), (a)Instituto de Ciencia de Materiales de Madrid, CSIC, Catoblanco, 28049 Madrid, Spain, (b)NIBEC, School of Electrical and Mechanical Engineering, University of Ulster, Shore Road, Newtownabbey, County Antrim BT370QB, Northern Ireland, U.K., (c)Department of Physics, Tamkang University, Tamsui 251, Taiwan, ROC, (d)Department of Chemistry, Tamkang University, Tamsui 251, Taiwan, ROC
- J/PI.33** DEVELOPMENT OF TRIBOLOGICAL COATINGS FOR CRYOCOOLERS
Neelkanth G. Dhere and Anil Pai, University of Central Florida, Florida Solar Energy Center, 1679 Clearlake Road, Cocoa FL 32922-5703, USA

Wednesday, May 26, 2004

Afternoon

Session V: Stress & mechanical properties

Session chairs: M. Bilek, G. Abadias

- J-V.1** 14:00 -Invited- STRUCTURE, STABILITY, AND STRESS PROPERTIES OF AMORPHOUS AND NANOSTRUCTURED CARBON FILMS
P.C. Kelires, Physics Department, University of Crete, P.O. Box 2208, 710 03 Heraclion, Crete, Greece, and Foundation for Research and Technology-Hellas (FORTH), P.O. Box 1527, 711 10 Heraclion, Crete, Greece
- J-V.2** 14:30 RESIDUAL STRESSES IN MULTILAYERED HARD CARBON COATINGS
V. Teixeira(a), J. Carneiro(a), A. Portinha(a), F.J.G. Silva(b), A.P.M. Baptista(c), F.M. Costa(d), E. Pereira(d), (a)GRF-Functional Coatings Group, CFUM- Centro de Física da Universidade do Minho, Campus de Azurém, 4800-058 Guimarães, Portugal, (b)Instituto Superior de Engenharia e Gestão, 4450 Vila do Conde, Portugal, (c)Departamento de Engenharia Mecânica da Faculdade de Engenharia da Universidade do Porto, Rua dos Bragas, 4050-123 Porto, Portugal, (d)Departamento de Física da Universidade de Aveiro, 3810 Aveiro, Portugal
- J-V.3** 14:50 STRESS RELAXATION OF SPUTTERED AMORPHOUS CARBON NITRIDE THIN FILMS
O. Durand-Drouhin(a), M. Benlahsen(a), M. Clin(a), A. Grosman(b), C. Ortega(b), K. Zellama(a), (a)Laboratoire de Physique de la Matière Condensée, Faculté des Sciences d'Amiens, 33 rue Saint Leu, Cedex 2, Amiens 80039, France, (b)Groupe de Physique des Solides, CNRS UA 17, Université Paris VI et VII, 2 place Jussieu, Cedex 05, Paris 75251, France
- J-V.4** 15:10 CHARACTERISATION OF INTERFACE REGIONS IN STEPWISE BIAS-GRADED LAYERS OF DLC FILMS BY HIGH-RESOLUTION DEPTH PROFILING METHODS
C. Ziebert, M. Stüber, S. Ulrich, H. Holleck, Forschungszentrum Karlsruhe, Institut für Materialforschung I, Postfach 3640, 76021 Karlsruhe, Germany
- J-V.5** 15:30 STRESS RELAXATION IN FILTERED CATHODIC VACUUM ARC (FCVA) AMORPHOUS CARBON FILMS USING LOW DUTY CYCLE, HIGH ENERGY ION BOMBARDMENT
M.M. Bilek, R.N. Tarrant, M. Verdon, D.R. McKenzie, University of Sydney, Australia
- J-V.6** 15:50 RELAXATION KINETICS IN AMORPHOUS CARBON FILMS: AN INSIGHT FROM ATOMIC SCALE SIMULATION
A.Yu. Belov, Technical University of Dresden, Hallwachsstr. 3, 01069 Dresden, Germany and H.U. Jaeger, Research Center Rossendorf, P.O.Box 510119, 01314 Dresden, Germany
- 16:10 **BREAK**

Session VI: Electronic properties, applications and devices

Session chairs: H. Cachet, A. Nassiopoulou

- J-VI.1** 16:30 -Invited- ELECTRON FIELD EMISSION FROM CARBON BASED MATERIALS
S.R.P. Silva, Nano-Electronics Centre Advanced Technology Institute, University of Surrey, Guildford GU2 7XH, U.K.
- J-VI.2** 17:00 EFFECT OF RF POWER ON THE PHOTOVOLTAIC PROPERTIES OF BORON-DOPED AMORPHOUS CARBON/N-TYPE SILICON JUNCTION FABRICATED BY PLASMA ENHANCED CHEMICAL VAPOR DEPOSITION
Tetsuo Soga, Toshihide Kokubu, Yasuhiko Hayashi and Takashi Jimbo, Department of Environmental Technology and Urban Planning, Nagoya Institute of Technology, Gokiso-cho, Showa-ku, Nagoya 466-8555, Japan
- J-VI.3** 17:20 ELECTRICAL TRANSPORT PROPERTIES OF NITROGENATED AMORPHOUS CARBON (a-C:N) PREPARED BY PYROLYSIS
B. Gopalakrishnan, S.V. Subramanyam, Department of Physics, Indian Institute of Science, Bangalore 560 012, India
- J-VI.4** 17:40 GLASSY BEHAVIOUR OF AMORPHOUS CARBON THIN FILMS THROUGH CAPACITIVE SPECTROSCOPY
R. Bouzerar, M. Benlahsen, J.C. Picot, Laboratoire de Physique de la Matière Condensée, UFR Sciences, 33 Rue Saint-Leu, 80039 Amiens, France
- J-VI.5** 18:00 ELECTRICAL TRANSPORT IN LOW-DIMENSIONAL AMORPHOUS CARBON FILMS
Somnath Bhattacharyya and S.R.P. Silva, School of Electronics and Physical Sciences, Advanced Technology Institute, University of Surrey, U.K.
- J-VI.6** 18:20 ELECTRON FIELD EMISSION STABILITY OF SI TIP ARRAYS COATED WITH DLC FILM
A.A. Evtukh, N.I. Klyui, V.G. Litovchenko, M.O. Semenenko, L. Neselevska, Institute of Semiconductor Physics, National Academy of Science of Ukraine, 45 prospect Nauki, 03028, Kiev, Ukraine and V.A. Makara, Kiev National Taras Shevchenko University, 4 Glushkova str., 03022, Kiev, Ukraine
- J-VI.7** 18:40 ELECTRO-OPTICAL CHARACTERISTICS OF THE ION BEAM ALIGNED TWISTED NEMATIC LIQUID CRYSTAL DISPLAY IN A CARBON NITRIDE THIN FILM
Chang-Joon Park(a), Jeong-Yeon Hwang(a), Dae-Shik Seo(a), Han-Jin Ahn(b), Kyung-Chan Kim(b) and Hong-Koo Baik(b), (a)Department of Electrical & Electronic Engineering (C-724), (b)Department of metallurgical Engineering, College of Engineering, Yonsei University, 134 Shinchon-dong, Seodaemoon-ku, Seoul 120-749, Korea

Thursday, May 27, 2004

Morning

Session VII: Hard and protective coatings

Session chairs: W. Gulbinsky, P.M. Ossi

- J-VII.1** 08:40 -Invited- PHYSICAL ASPECTS OF PRACTICAL APPLICATIONS OF STRENGTHENING DLC FILMS DEPOSITED BY PULSED CATHODIC VACUUM-ARC SPUTTERING
I.Sh. Trakhtenberg and V.B. Vykhodets, Institute of Metal Physics, Ural Branch Russian Academy of Sciences, Ekaterinburg, Russia
- J-VII.2** 09:10 -Invited- ACHIEVING SUPERLOW FRICTION WITH HYDROGENATED AMORPHOUS CARBON: SOME KEY REQUIREMENTS
J. Fontaine, T. Le Mogne, J.L. Loubet, M. Belin, Ecole Centrale de Lyon, France
- J-VII.3** 09:40 STRUCTURAL, MECHANICAL AND NANOSCALE TRIBOLOGICAL PROPERTIES OF NITROGEN INCORPORATED FLUORINE-CARBON FILMS
M.E.H. Maia da Costa, C.M.T. Sanchez, R.R.M. Zamora and F.L. Freire Jr., Departamento de Física, Pontifícia Universidade Católica do Rio de Janeiro, Rio de Janeiro, RJ 22453-970, Brazil, L.G. Jacobsohn, Los Alamos National Laboratory, Los Alamos NM 87545, USA
- J-VII.4** 10:00 SEALING PERFORMANCE OF THIN AMORPHOUS CARBON FILMS FORMED BY ION BEAM ASSISTED DEPOSITION AT LOW TEMPERATURE FOR PROTECTION OF ALUMINIUM AGAINST AGGRESSIVE MEDIA
Ch. Sundermann, J. von Ringleben, W. Ensinger, University of Marburg, Department of Chemistry and Materials Science Center, 35032 Marburg, Germany, and T. Matsutani, M. Kiuchi, National Institute of Advanced Science and Technology, Osaka, Japan
- J-VII.5** 10:20 NANOMECHANICAL AND NANOTRIBOLOGICAL PROPERTIES OF CARBON BASED FILMS
C. Charitidis, S. Logothetidis, Laboratory for Thin Films, Nanosystems and Nanometrology, Department of Physics, Aristotle University of Thessaloniki, 54124 Thessaloniki, Greece
- 10:40 **BREAK**

Session VIII: Biological applications

Session chairs: C. Meunier, Y. Gogotsi

- J-VIII.1** 11:00 -Invited- AN OVERVIEW OF DLC COATINGS FOR BIOLOGICAL APPLICATIONS
R. Hauert, Swiss Federal Laboratories for Materials Testing and Research (EMPA), Überlandstrasse 129, 8600 Dübendorf, Switzerland
- J-VIII.2** 11:30 HAEMOCOMPATIBILITY STUDIES ON CARBON-BASED THIN FILMS
M. Gioti, S. Fotiadou, S. Logothetidis, S. Lousinian, Aristotle University of Thessaloniki, Department of Physics, 54124 Thessaloniki, Greece
- J-VIII.3** 11:50 CN_x FILMS AS BIOMATERIALS COATINGS – STUDY OF CELL ADHESION KINETICS, CELL PROLIFERATION AND CELL MORPHOLOGY
P. Linez(a), H.F. Hildebrand(a), V. Fouquet(b), N. Mubumbila(c), B. Angleraud(c), L. Pichon(b), A. Straboni(b), P.Y. Tessier(c), (a)Groupe de Recherche sur les Biomatériaux, UPRES EA 1049, Faculté de Médecine, Lille, France, (b)Laboratoire de Métallurgie Physique, UMR 6630 CNRS, Université de Poitiers, France, (c)Laboratoire des Plasmas et des Couches Minces, Institut des Matériaux J. Rouxel, UMR 6502-CNRS, Université de Nantes, France
- 12:10 **LUNCH**

Thursday, May 27, 2004

Afternoon

13:40 – 15:40

POSTER SESSION II

- J/PII.01** OBTAINING OF AMORPHOUS HYDROGENATED DIAMOND-LIKE CARBON FILMS AND STUDY OF THEIR ELECTROPHYSICAL CHARACTERISTICS
Zh.R. Panosyan(a), V.I. Polyakov(b), Y.V. Yengibaryan(a), S.S. Voskanyan(a), (a)Department of Physics, State Engineering University of Armenia, (b)Department of Microelectronics, Institute of Radio Engineering & Electronics, RAS, Russia
- J/PII.02** NITROGENATED AMORPHOUS CARBON (a-CN_x) FILMS FOR ELECTROCHEMICAL APPLICATIONS
A. Lagrini, H. Cachet, C. Debiemme-Chouvy, C. Deslouis, LISE, UPR 15 du CNRS, UPMC, CP 133, 4 Place Jussieu, 75252 Paris cedex 05, France and M. Benlahsen, S. Charvet, LPMC, Faculté des Sciences d'Amiens, 33 rue St Leu, 80039 Amiens cedex, France
- J/PII.03** ELECTRON FIELD EMISSION AND SURFACE MORPHOLOGY OF a-C AND a-C:H THIN FILMS
V.M. Anishchik, V.V. Uglov, A.K. Kuleshov, M.V. Novitskaya, M.P. Samtsov, Belarussian State University, Pr. F. Scoriny 4, 220080 Minsk, Belarus, O.À. Kuznetsova, BRSPU of powdered metallurgy, Platonova Str. 12 À, Minsk, Belarus, F. Thiéry, Y. Pauleau, National Polytechnic Institute of Grenoble, CNRS-LEMD, B.P. 166, 25 Rue des Martyrs, 38042 Grenoble cedex 9, France
- J/PII.04** STUDIES ON THE RECTIFICATION OF a-C/Si JUNCTION
B. Gopalakrishnan, S.V. Subramanyam, Department of Physics, Indian Institute of Science, Bangalore 560 012, India
- J/PII.05** CH_x/PS/Si AS STRUCTURE FOR PROPANE SENSING
S. Belhousse(a), N. Gabouze(a), H. Cheraga(a) and K.Henda(b), (a)UDTS, BP 399, Algiers, Algeria, (b)CDTA, Haouche Loukil B.P 17 Baba-Hassen, Algiers, Algeria
- J/PII.06** ELECTRICAL CONDUCTIVITY STUDY OF BISMUTH INTERCALATED AMORPHOUS CARBON
Pitamber Mahanandia, Department of Physics, Indian Institute of Science, Bangalore 560012, India
- J/PII.07** NITROGEN EFFECT ON THE ELECTRICAL PROPERTIES OF CN_x THIN FILMS BY REACTIVE MAGNETRON SPUTTERING
N.E. Derradji, M.L. Mahdjoubi, H. Belkhir, LESIMS, Université Badji Mokhtar, BP12, El hadjar, Annaba, Algérie and N. Mumumbila, B. Angleraud, P.Y. Tessier, LPCM, IMN, UMR6502 CNRS, Université de Nantes, 44322 Nantes Cedex, France
- J/PII.08** PECVD a-C:H FILMS FOR STW RESONANT DEVICES
G. Cicala, P. Bruno, IMIP-CNR Sezione di Bari w/o Dipartimento di Chimica, Università di Bari, Via Orabona 4, 70126 Bari, Italy, A. Dragone, Dipartimento di Ingegneria Elettrotecnica, Politecnico di Bari, via Orabona 4, 70126 Bari, Italy, A.M. Losacco, Centro Laser, S.P. Casamassima km 3, 70010 Valenzano (Bari), Italy, R. Caminiti, Dipartimento di Chimica, Università di Roma "La Sapienza", P.le Aldo Moro 5, Roma, Italy
- J/PII.09** FIELD EMISSION PROPERTIES OF SPUTTERED TETRAHEDRAL AMORPHOUS CARBON FILMS DEPOSITED AT ROOM TEMPERATURE.
N. Konofaos, E.K. Evangelou, Department of Physics, University of Ioannina, 45110 Ioannina, Greece, C.A. Dimitriadis, P. Patsalas and S. Logothetidis, Department of Physics, University of Thessaloniki, 54006 Thessaloniki, Greece
- J/PII.10** AN ELECTRICAL, OPTICAL AND EPR STUDY OF ROOM TEMPERATURE DEPOSITED CN_x FILMS ON Si
N. Konofaos(a,b), I. Deliyianakis(b), E.K. Evangelou(c), M. Gioti(d), S. Logothetidis(d), (a)Computer Engineering & Informatics Dept., University of Patras, 26500 Patras, Greece, (b)Physics Dept., University of Ioannina, P.O.Box 1186, 45110 Ioannina, Greece, (c)Department of Natural Resources and Management, University of Ioannina, 30100 Agrinio, Greece, (d)Physics Department, Aristotle University of Thessaloniki, 54006 Thessaloniki, Greece
- J/PII.11** THE ELECTRICAL AND STRUCTURAL PROPERTIES OF THE HYDROGENATED AMORPHOUS CARBON FILMS GROWN BY CLOSE FIELD UNBALANCED MAGNETRON SPUTTERING
Yong Seob Park, Byungyou Hong, Sungkyunkwan University, Suwon, Korea
- J/PII.12** TEMPERATURE AND FIELD DEPENDENCE OF ELECTRICAL TRANSPORT IN PULSED LASER DEPOSITED AMORPHOUS CARBON FILMS
T. Katsumo, C. Godet, LPICM, Ecole Polytechnique, 91128 Palaiseau, France, J.C. Orlianges and A. Catherinot, SPCTS, Faculté des Sciences et Techniques, 123 av. A. Thomas, 87060 Limoges, France
- J/PII.13** STRUCTURAL, BONDING AND PHYSICAL CHARACTERISTICS OF PHOSPHORUS DOPED HYDROGENATED AMORPHOUS CARBON FILMS GROWN BY PLASMA ENHANCED CHEMICAL VAPOR DEPOSITION
Mohamad Rusop, Tetsuo Soga and Takashi Jimbo Department of Environmental Technology and Urban Planning, Nagoya Institute of Technology, Nagoya 466-8555, Showa-ku, Gokiso-cho, Japan
- J/PII.14** CONDUCTING AMORPHOUS CARBON (a-C) PREPARED BY PYROLYSIS ASSISTED CHEMICAL VAPOR DEPOSITION
S.V. Subramanyam, Department of Physics, Indian Institute of Science, Bangalore 560 012, India
- J/PII.15** Cu/a-C:H NANOCOMPOSITE FILMS : MAGNETRON SPUTTER-DEPOSITION, CHARACTERIZATION AND TRIBOLOGICAL BEHAVIOR
W. Gulbinski(a), S. Kukielka(a), Y. Pauleau(b), (a)Technical University of Koszalin, Faculty of Mechanical Engineering, Department of Physics, 75-620 Koszalin, Poland, (b)National Polytechnic Institute of Grenoble, CNRS-LEMD, 25 Rue des Martyrs, B.P. 166, 38042 Grenoble Cedex 9, France

- J/PII.16** ELECTRON PARAMAGNETIC RESONANCE STUDIES OF METAL DOPED CARBON FILMS
T.C. Christidis, M. Tabbal, S. Isber, American University of Beirut, Lebanon and J.C. Orlianges, A. Catherinot, SPCTS UMR CNRS, Limoges, France
- J/PII.17** NICKEL-INCORPORATED AMORPHOUS CARBON FILMS DEPOSITED BY FEMTOSECOND PULSED LASER ABLATION
N. Benchikh(a), F. Garrelie(a), K. Wolski(b), C. Donnet(a), B. Bouchet-Fabre(c), F. Rogemond(a), A.S Loir(a), J.L. Subtil(a), (a)Laboratoire Traitement du Signal et Instrumentation, UMR 5516, Université J. Monnet, 10 rue Barrouin, 42000 Saint-Etienne, France, (b)Ecole Nationale Supérieure des Mines de Saint-Etienne, Centre SMS – URA CNRS 5146, 158 cours Fauriel, 42023 Saint-Etienne Cedex 02, France, (c)Laboratoire pour l'Utilisation du Rayonnement Electromagnétique, UMR CNRS 130 - SPM (05,18), Centre Universitaire, B.P. 34 91898 Orsay Cedex, France
- J/PII.18** COMPOSITION AND MORPHOLOGY OF METAL CONTAINING DIAMOND-LIKE CARBON FILMS OBTAINED BY REACTIVE MAGNETRON SPUTTERING
C. Corbella(a), E. Pascual(a), G. Oncins(b), M.C. Polo(a), J.L. Andújar(a), E. Bertran(a), (a)Departament de Física Aplicada i Òptica, Universitat de Barcelona, Av.Diagonal 647, 08028, Barcelona, Spain, (b)Serveis Científico-Tècnics, Universitat de Barcelona, PCB, Josep Samitier 1-5, 08028 Barcelona, Spain
- J/PII.19** ELECTRICAL AND MAGNETIC PROPERTIES OF IRON NANOCRYSTALLITES EMBEDDED IN CARBON MATRIX
E.P. Sajitha, V.B. Prasad, S.V. Subramanyam, Department of Physics, IISc, Bangalore, India
- J/PII.20** EFFECT OF Si INCORPORATION ON WEAR-CORROSION PROPERTIES OF DIAMOND-LIKE CARBON (DLC) FILMS
H.G. Kim(a), S.H. Ahn(a), J.G. Kim(a), S.J. Park(b), K.R. Lee(b), (a)Department of Advanced Materials Engineering, SungKyunKwan University, 300 Chunchun-Dong, Jangan-Gu, Suwon 440-746, Korea, (b)Future Technology Research Division, Korea Institute of Science and Technology, P.O. Box 131, Cheongryang, Sungbuk-Gu, Seoul 130-650, Korea
- J/PII.21** SURFACE CHARACTERISATION OF NANO-STRUCTURED CARBON FILMS DEPOSITED BY Nd-YAG PULSED LASER DEPOSITION
E. Cappelli, C. Scilletta, R. Flammini, S. Iacobucci, G. Mattei, P. Ascarelli, CNR-IMIP, P.O.B.10, 00016 Monterotondo, Rome, Italy, S. Orlando, CNR-IMIP, P.O.B.27, 85050, Tito Scalo, Potenza, Italy
- J/PII.22** ELECTROCHEMICALLY INDUCED SURFACE MODIFICATIONS IN BORON DOPED DIAMOND FILMS: A RAMAN SPECTROSCOPY STUDY
P.C. Ricci(a), A.M. Polcaro(b), A. Anedda(a), C.M. Carbonaro(a), F. Clemente(a) and R. Corpino(a), (a)Dipartimento di Fisica, Università di Cagliari and INFM UdR Cagliari, Cittadella Universitaria, 09042 Monserrato (Ca), Italy, (b)Dipartimento di Ingegneria Chimica e Materiali, Università degli Studi di Cagliari, Piazza d'armi, 09123 Cagliari, Italy
- J/PII.23** INTRINSIC MECHANICAL PROPERTIES OF SPUTTER DEPOSITED AMORPHOUS CARBON FILMS: STRESS EVOLUTION UNDER ANNEALING AND INFLUENCE OF NITROGEN IMPLANTATION
S. Charvet, LPMC, Université de Picardie Jules Verne, 33 rue Saint-Leu, 80039 Amiens Cedex 1, France, E. Le Bourhis, D. Faurie et P. Goudeau, LMP-UMR CNRS 6630, Université de Poitiers, Bvd Marie et Pierre Curie, 86962 Futuroscope Chasseneuil, France, M. Lejeune, IES, Joint Research Centre TP 263, Via Fermi 21020 Ispra, Italy and P. Gergaud, Laboratoire TECSN - UMR CNRS 6122, Case 262, Faculté des Sciences et Techniques de St Jérôme, 13397 Marseille cedex 20, France
- J/PII.24** STUDY OF STRESS VARIATION IN CARBON NITRIDE FILMS DEPOSITED BY IPVD
B. Angleraud(a), M.P. Besland(a), P.Y. Tessier(a), D. Sarangi(b), J.P. Landesman(a) and M.A. Djouadi(a), (a)Laboratoire des Plasmas et des Couches Minces, Institut des Matériaux Jean Rouxel, UMR CNRS 6502, Université de Nantes, BP 32229, 44322 Nantes cedex 3, France, (b)Institut de Physique de la Matière Complexe, EPFL, Ecole Polytechnique Fédérale de Lausanne, 1015 Lausanne, Switzerland
- J/PII.25** IN SITU TENSILE TESTS USING SEM OF SPUTTERED CN_x FILMS DEPOSITED ON Ti6Al4V SUBSTRATES 6 EFFECT OF THE FILM THICKNESS AND THE PLASMA SURFACE PRE-TREATMENT
P. Villechaise(a), X. Milhet(a), B. Angleraud(b), V. Fouquet(c), L. Pichon(c), A. Straboni(c), P.Y. Tessier(b), (a) Laboratoire de Mécanique et Physique des Matériaux, UMR 6617-CNRS, ENSMA, Poitiers, France, (b)Institut des Matériaux Jean Rouxel, UMR 6502-CNRS, Université de Nantes, France (c)Laboratoire de Métallurgie Physique, UMR 6630-CNRS, Université de Poitiers, France
- J/PII.26** CARBON BLACK FILLED POLYSTYRENE DEMONSTRATING NEW PHYSICAL PROPERTIES
U.Kh. Akhmedov, Tashkent State Technical University, Department of "Physics and Technology of electronic materials", Tashkent, Uzbekistan
- J/PII.27** LOW TEMPERATURAL REACTION OF THE MOLECULAR CARBON FILMS AND POROUS Si
Vasily A.Krasnov, ISP NASU, Kherson Depart, PO Box 76, Zavodskaya78, 73008 Kherson, Ukraine
- J/PII.28** THE PROPERTIES OF BORON DOPED AMORPHOUS CARBON FILMS GROWN BY PULSED LASER DEPOSITION USING CAMPHORIC CARBON TARGET
Mohamad Rusop, Tatsuya Kinugawa, Tetsuo Soga and Takashi Jimbo, Department of Environmental Technology and Urban Planning, Nagoya Institute of Technology, Nagoya 466-8555, Showa-ku, Gokiso-cho, Japan

Session IX: Metal-carbon composites and carbon nanocomposites (1)

Session chairs: Y. Pauleau, S. Zhang

- J-IX.1** 15:40 -Invited- PREPARATION, PROPERTIES AND APPLICATIONS OF METAL-CONTAINING DLC COATINGS
Klaus Bewilogua, Fraunhofer Institute for Surface Engineering and Thin Films, Bienroder Weg 54 E, 38108 Braunschweig, Germany
- J-IX.2** 16:10 Cr-DLC NANOCOMPOSITE FILMS: SYNTHESIS, CHARACTERIZATION AND PROPERTIES
V. Singh and E.I. Meletis, Materials Science and Engineering program, Mechanical Engineering Department, Louisiana State University, Baton Rouge LA 70803, USA
- J-IX.3** 16:30 SYNTHESIS AND IN-SITU ELLIPSOMETRIC MONITORING OF Ti/C NANOSTRUCTURED MULTILAYERS USING A HIGH-CURRENT, DUAL SOURCE PULSED CATHODIC ARC
L. Ryves, M.M.M. Bilek, T.W.H. Oates, R.N. Tarrant, D.R. McKenzie, School of Physics, University of Sydney, NSW 2006, Australia
- J-IX.4** 16:50 SYNTHESIS OF AMORPHOUS/POLYMERIC NANOLAYERED CARBON FILMS WITH LAYER STRUCTURE AND STRESS CONTROL
N. Laidani, R. Bartali, B. Astruc, V. Micheli, M. Anderle, Istituto di Ricerca Scientifica e Tecnologica-ITC, Divisione Fisica-chimica delle Superfici ed Interfacce, Via Sommarive 18, 38050 Povo (Trento), Italy
- 17:10 **BREAK**

Session X: Metal-carbon composites and carbon nanocomposites (2)

Session chairs: R. Hauert, G. Radnoczy

- J-X.1** 17:30 -Invited- ADHESION AND TRIBOLOGICAL PROPERTIES OF AMORPHOUS CARBON AND CARBON-BASED NANOCOMPOSITE COATINGS
Sam Zhang (1), X.L. Bui (1), X. T. Zeng (2), X. Li (3)
(1) School of Mechanical & Production Engineering, Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798; (2) Singapore Institute of Manufacturing Technology, 71 Nanyang Drive, Singapore 638075, Singapore, (3) State Key Laboratory of High Performance Ceramics and Super-fine Microstructures, Shanghai Institute of Ceramics, 1295 DingXi Road, Shanghai 200050, P. R. China
- J-X.2** 18:00 SIMULATIONS OF NANOTUBE CARBON NANOCOMPOSITES
M. Fyta and P.C. Kelires, Physics Department, University of Crete, P.O. Box 2208, 710 03 Heraclion, Crete, Greece, and Foundation for Research and Technology-Hellas (FORTH), P.O. Box 1527, 711 10 Heraclion, Crete, Greece
- J-X.3** 18:20 DEPOSITION OF COPPER-CONTAINING DIAMOND-LIKE CARBON NANOCOMPOSITE FILMS BY FACILE ELECTROCHEMICAL METHOD
He-qing Jiang, Li-na Huang, Zhi-jun Zhang, Laboratory of Special Functional Materials, Henan University, Kaifeng 475001, P.R. China
- J-X.4** 18:40 STRUCTURE, FORMATION AND ELECTRIC PROPERTIES OF C-Ni AND CN_x-Ni NANOCOMPOSITE FILMS
Gy. J. Kovács, G. Sáfrán, O. Geszti, A. Koós, G. Radnóczy, Research Institute for Technical Physics and Materials Science, 1525 Budapest, P.O. Box 49, Hungary and T. Hanada, The Institute of Scientific and Industrial Research, Osaka University, Mihogaoka 8-1, Ibaraki Osaka 567-0047, Japan

Friday, May 28, 2004

Morning

Session XI: Spectroscopy, chemical bonding and optical properties (1)

Session chairs: F. Rogemond, I. Jimenez

- J-XI.1** 09:00 -Invited- RAMAN SPECTROSCOPY OF CARBONS: STATE OF THE ART
A.C. Ferrari, Engineering Department, Cambridge University, Cambridge CB2 1PZ, U.K.
- J-XI.2** 09:30 THE STRUCTURE OF AMORPHOUS CARBON NITRIDE FILMS USING A COMBINED STUDY OF NEXAFS, XPS AND RAMAN SPECTROSCOPIES
S.S. Roy, P. Papakonstantinou, R. McCann, P. Maguire, J. McLaughlin, NIBEC, School of Electrical and Mechanical Engineering, University of Ulster at Jordanstown, Shore Road, Newtownabbey, Co Antrim BT37 0QB, Northern Ireland
- J-XI.3** 09:50 ELECTRONIC AND OPTICAL PROPERTIES OF A-C FROM TIGHT-BINDING MOLECULAR DYNAMICS SIMULATIONS
C. Mathioudakis(a), P.C. Kelires(b), M. Gioti(a), P. Patsalas(a), And S. Logothetidis(a), (a)Physics Department, Aristotle University of Thessaloniki, 540 06 Thessaloniki, Greece, (b)Physics Department, University of Crete, P.O. Box 2208, 710 03 Heraclion, Crete, Greece, and Foundation for Research and Technology-Hellas (FORTH), P.O. Box 1527, 711 10 Heraclion, Crete, Greece
- J-XI.3** 10:10 SPECTROSCOPIC CHARACTERISATION OF HYDROGENATED DIAMOND-LIKE CARBON FILMS.
Jacqueline A. Johnson, John B. Woodford, Ali Erdemir and George R. Fenske, Energy Technology Division, Argonne National Laboratory, Argonne IL 60439-4845, USA, Xidong Chen, Materials Science Division, Argonne National Laboratory, Argonne IL 60439-4845, USA and Cedarville University, Cedarville OH 45314, USA, Joakim Anderson, The Angstrom Laboratory, Box 534, 751 21 Uppsala, Sweden
- 10:30 **BREAK**

Session XII: Growth methods & processes (2)

Session chairs: K. Bewilogua, T. Soga

- J-XII.1** 10:50 -Invited- LASER SYNTHESIS AND MICROPROCESSING OF DLC FILMS
V.I. Konov, T.V. Kononenko, V.V. Kononenko, S.M. Pimenov, E.V. Zavedeev, Natural Sciences Center, A.M. Prokhorov General Physics Institute, Vavilov str. 38, 119991 Moscow, Russia, F. Dausinger, Institut für Strahlwerkzeuge, Universität Stuttgart, Pfaffenwaldring 43, 70569 Stuttgart, Germany, V. Romano, Institute of Applied Physics, University of Bern, Sidlerstrasse 5, 3012 Bern, Switzerland
- J-XII.2** 11:20 ARGON DIFFUSION THROUGH AMORPHOUS CARBON RELATED MATERIALS
M. Burrowes and **S.S. Camargo Jr.**, Engenharia Metalúrgica e de Materiais, Universidade Federal do Rio de Janeiro, PO Box 68505, CEP 21945-970, Rio de Janeiro, Brazil
- J-XII.3** 11:40 THE EFFECT OF n₂ AND N₂O DOPING GAS ON DLC THIN FILMS DEPOSITED BY PECVD
Y.T. Kim(a), D.S. Kim(a), S.G. Yoon(a), G.E. Jang(b), M.H. Oh(c), S.J. Suh(a) and D.H. Yoon(a), (a)Dep. of Advanced Materials Engineering, Sungkyunkwan University, Suwon 440-746, Korea, (b)Dep. of Materials Science & Materials Engineering, Chungbuk University, Cheongju 361-763 Korea, (c)Neosemitech, Incheon, 404-310, Korea
- 12:00 **LUNCH**

Friday, May 28, 2004

Afternoon

Session XIII: Spectroscopy, chemical bonding and optical properties (2)

Session chairs: A.C. Ferrari, A. Erdem

- J-XIII.1** 13:40 -Invited- COMPARATIVE STUDY OF THE STRUCTURE OF A-C_{NX} AND A-C_{NX}:H FILMS USING NEXAFS, XPS AND FTIR ANALYSIS
B. Bouchet-Fabre, LFP, SPAM, CEA- Saclay, 91191 Gif sur Yvette cedex, France, D. Ballutaud, LPSC, CNRS, 92100 Meudon cedex, France, K. Zellama, LPMC, Université Jules Verne, 80039 Amiens cedex, France, T. Minéa, LPCM, I.M.N Jean Rouxel, BP 32229, 44322 Nantes cedex3, France, C. Godet, LPICM, Ecole Polytechnique, 91128 Palaiseau, France
- J-XIII.2** 14:10 SIGNATURE OF NANODIAMOND IN RAMAN SPECTRUM: AN AB INITIO STUDY
R.Q. Zhang and D.J. Zhang, Department of Physics and Materials Science, City University of Hong Kong, Hong Kong SAR, China
- J-XIII.3** 14:30 SPECTROSCOPIC STUDY USING FTIR, RAMAN, XPS AND NEXAFS OF CARBON NITRIDE THIN FILMS DEPOSITED BY RF MAGNETRON SPUTTERING
E. Marino, K. Zellama, G. Lazar, LPMC, Université Jules Verne, 80039 Amiens cedex, France, B. Bouchet-Fabre, LFP, SPAM, CEA- Saclay, 91191 Gif sur Yvette cedex, France, D. Ballutaud, LPSC, CNRS, 92100 Meudon cedex, France
- J-XIII.4** 14:50 BONDING STRUCTURE OF CARBON-RICH BC_xN: A MATERIAL WITH IMPROVED WEAR RESISTANCE AND REDUCED INTERNAL STRESS
I. Caretti, **I. Jiménez** and J.M. Albella, Instituto de Ciencia de Materiales de Madrid (CSIC), 28049 Madrid, Spain
- J-XIII.5** 15:10 ELECTRONIC STRUCTURE AND OPTICAL PROPERTIES OF AMORPHOUS CARBON FILMS: AN ELLIPSOMETRY STUDY
E. Pavlopoulou(a), **P. Patsalas**(a), M. Gioti(a), S. Logothetidis(a), I. Pocsik(b), J. Robertson(c) and S. Kennou(d), (a)Aristotle University of Thessaloniki, Physics Department, 54124 Thessaloniki, Greece, (b)Research Institute for Solid State Physics and Optics, 1525, Budapest, Hungary, (c)University of Cambridge, Department of Engineering, Cambridge CB2 1PZ, U.K., (d)University of Patras, Department of Chemical Engineering, 26500 Rion, Greece
- 15:30 **CONCLUDING REMARKS**