

Physics and Accelerators Unit

Advanced Materials Research

Journals

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- D. Nunes, V. Livramento, R. Mateus, J.B. Correia, L.C. Alves, M. Vilarigues, P.A. Carvalho, Mechanical synthesis of copper–carbon nanocomposites: Structural changes, strengthening and thermal stabilization, *Materials Science and Engineering: A* 528, 29-30, 8610-8620 (2011).
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- Fiona K. M. Reiser, Diogo R. N. Rosa, Ivaro M. M. Pinto, Joo R. S. Carvalho, Joo X. Matos, Fernanda M. G. Guimares, Luis C. Alves, Daniel P. S. de Oliveira, Mineralogy and geochemistry of tin- and germanium-bearing copper ore, Barrigão re-mobilized vein deposit, Iberian Pyrite Belt, Portugal, *International Geology Review* 53, 10, 1212-1238 (2011).
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- M. Peres, S. Magalhães, J. Rodrigues, M.J. Soares, V. Fellmann, A.J. Neves, E. Alves, B. Daudin, K. Lorenz, T. Monteiro, The role of the annealing temperature on the optical and structural properties of Eu doped GaN/AlN QD, *Optical Materials* 33, 1045-1049 (2011).
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J. Borges, F. Vaz, and L. Marques, E. Alves, Optical properties of AlN_xO_y thin films deposited by DC magnetron sputtering, *Proc. SPIE 8001*, 80010F, doi:10.1117/12.892038 (2011).

K. Lorenz, M. Peres, N. Franco, J.G. Marques, S.M.C. Miranda, S. Magalhaes, T. Monteiro, W. Wesch, E. Alves, E. Wendler, Radiation damage formation and annealing in GaN and ZnO, Oxide-Based Materials and Devices II, *Book Series: Proceedings of SPIE*, Volume: 7940, Article Number: 79400O (2011), DOI: 10.1117/12.879402.

K. Lorenz, S. M. C. Miranda, N. P. Barradas, E. Alves, Y. Nanishi, W. J. Schaff, L.W. Tu, V. Darakchieva, Hydrogen In Group-III Nitrides: An Ion Beam Analysis Study, *AIP Conf. Proc.* 1336, 310-313 (2011).

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Rui M.S. Martins, Felix Beckmann, Rui Castanhinha, Octávio Mateus, and Philipp Klaus Pranzas, Dinosaur and Crocodile Fossils from the Mesozoic of Portugal: Neutron Tomography and Synchrotron-Radiation Based Micro-Computed Tomography, *MRS Proceedings*, Volume: 1319, mrsf10-1319-ww02-03, (2011), doi:10.1557/opl.2011.794.

Communications

Invited

K. Lorenz, S. M. C. Miranda, N. Franco, E. Alves, J. G. Marques, E. Wendler, W. Wesch, M. Peres, T. Monteiro, Radiation damage formation and annealing in GaN and ZnO, N. SPIE Photonics West, *OPTO, Oxide-based Materials and Devices II*, January 22-27 (2011), San Francisco, California United States.

V. Corregidor, L. C. Alves "Application of External Ion Beam at ITN to Cultural Heritage.", 11th Iberian Joint Meeting on Atomic and Molecular Physics June 19-22 (2011), Coimbra, Portugal.

K. Lorenz, S. Magalhães, S. Miranda, N. Catarino, N. Franco, E. Alves, M. Peres, J. Rodrigues, T. Monteiro, I. S. Roqan, K.P. O'Donnell, M. Boćkowski, E. Nogales, B. Méndez, V. Fellmann, B. Daudin, Rare Earth doping of III-nitrides by ion implantation: from 3D to 0D, *Fall Meeting of the European Materials Research Society (E-MRS)*, Symposium J: Rare earth doped semiconductors and nanostructures for photonics, September 19-23 (2011), Warsaw, Poland.

R. Yakimova, V. Darakchieva, R. Yazdi, J. Jenssen, A. Boosalis, T. Hofmann, and M. Sschubert, Epitaxial graphene grown by high temperature sublimation, *3rd International Symposium on the Science and Technology of Epitaxial Graphene*, October (2011), St. Augustine, US.

Oral

A. Boosalis, T. Hofmann, S. Schöche, P. Dowben, S. Gaddam, C. Vamala, J. Kelber, V. Darakchieva, Talk at International conference on SiC and related materials, September (2011), Denver, US.

A. Boosalis, T. Hofmann, S. Schöche, P.A. Dowben, S. Gaddam, C. Vamala, J. Kelber, V. Darakchieva, D.K. Gaskill, and M. Schubert, Optical Properties of Graphene on MgO and SiC Polytypes Determined by Spectroscopic Ellipsometry, AVS 58th International Symposium, October (2011), US.

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Darakchieva, V (presenting); Lorenz, K; Ruffenach, S; Xie, M.-Y; Alves, E; Moret, M; Briot, O; Schaff, WJ; Hsiao, CL; Chen, LC; Tu, LW; Yamaguchi, T; Nanishi, Y, Hydrogen in InN with polar, nonpolar and semipolar surface orientations, 9th International Conference on Nitride Semiconductors, July 10-14 (2011), Glasgow, UK.

Darakchieva, V, Monteiro, T, Xie, M.-Y; Son, N.T., Rodrigues, J., Alves, E; Santos, A; Tolstoguzov, A; Usui, A; Hemmingson, C.; Monemar, B Electron irradiation of bulk HVPE GaN: structural properties and photoluminescence, 9th International Conference on Nitride Semiconductors, 10-14 July 2011, Glasgow, UK.

E. Alves, AlN content influence on the properties of Al_xGa_{1-x}N doped with Prions, 20th International conference on Ion Beam Analysis, Florianopolis, Brasil, April 2011.

E. Alves, Analysis of 13C deposition near the injection point (JW11-FT-3.65), Task Force Fusion Technology 2011 Annual monitoring Meeting, December 12-14 (2011), JET Culham Science Centre, UK.

E. Alves, Composition effects on implantation disorder in Al_xGa_{1-x}N, 16th International Conference on Radiation Effects on Insulators, Pequim, China, August 2011.

L. C. Alves, V. Corregidor, N. Franco, Archaeometry at ITN using Ion Beams and X-ray Diffraction Analysis, Seminário sobre Conservação e técnicas de análise para o estudo e salvaguarda do património metálico, 29-30 March 2011, Lisbon, Portugal.

L. C. Alves, V. Corregidor, R.C. da Silva, A. Rodrigues, Nuclear Techniques in Cultural Heritage, Workshop on Physical and Chemical Analytical Techniques in Cultural Heritage, 1-2 June 2011, Lisbon, Portugal.

L.C. Alves, PIXE on Heavy Metals Analysis, International Workshop on Heavy Metals: from the

environment to man, 12 December 2011, Lisbon, Portugal.

M. Fialho, K. Lorenz, S. Magalhães, L.C. Alves, T. Monteiro, M. Peres, E. Alves, Influence of Al content on RE lattice site location on Al_xGa_(1-x)N, Fall Meeting of the European Materials Research Society (E-MRS), Symposium J: Rare earth doped semiconductors and nanostructures for photonics, Warsaw, Poland, September 19 – 23, 2011,

R.M.S. Martins, N. Barradas, E. Alves, D. Henke, H. Reuther, M.J. Carmezim, T.M. Silva, J.C.S. Fernandes, Ni-Ti alloy surface modified by plasma immersion ion implantation for biomedical applications, EUROMAT 2011 – Materials and Devices); September 14- 15, 2011; Montpellier – France.

U. Wahl, J.G. Correia, P. Miranda, N. Catarino, E. Bosne, M.R. da Silva, and E. Alves, Position-sensitive detectors for RBS channeling experiments: a status report from ITN', Joint Research Activity Meeting of the SPIRIT (Support of Public and Industrial Research using Ion Beam Technology) EU FP7 Collaborative Project, Université Pierre et Marie Curie, 25.-26.1.2011, Paris, France.

V. Darakchieva, K. Lorenz, M.-Y. Xie, N. P. Barradas, E. Alves, W. J. Schaff, C.L. Hsiao, L.C. Chen, L.W. Tu, T. Yamaguchi, Y. Nanishi Unintentional incorporation of hydrogen in InN with different surface orientations, E-MRS 2011 Spring Meeting, 9-11 June, 2011, Nice, France.

Poster

A. Boosalis, T. Hofmann, S. Schöche, P. Dowben, S. Gaddam, C. Vamala, J. Kelber, V. Darakchieva, R. Yakimova, L.O. Nyakiti, V.D. Wheeler, R.L. Myers-Ward, C.R. Eddy, Jr., D.K. Gaskill, and M. Schubert, Optical properties of graphene on SiC polytypes determined by spectroscopic ellipsometry from the terahertz to the VUV, Nano-DDS, August (2011), US.

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A. Redondo-Cubero, J. Pereiro, K. Lorenz, N. Franco, J. Grandal, E. Alves and E. Muñoz, Relaxation and crystal quality of In_xGa_(1-x)N epilayers grown at intermediate InN contents (x~0.5), 9th International Conference on Nitride Semiconductors, ICNS-9, July 10 – 15, 2011, Glasgow, U.K..

A. Redondo-Cubero, M.F. Romero, M. Peroni, C. Lanzieri, A. Cetronio and E. Muñoz, Controlled diffusion of Au/Ni/Al/Ti ohmic contacts in AlGaN/GaN HEMTs: limits for the barrier effect of Al, 9th International Conference on Nitride Semiconductors, ICNS-9, July 10-15, 2011, Glasgow, U.K..

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- B. Lacroix, S.M.C. Miranda, A. Decléméy, S. Leclerc, C. Grygiel, K. Lorenz, I. Monnet, E. Alves and P. Ruterana, A comparative investigation of the damage formation in GaN, AlN and InN under rare earth implantation at medium range energy, *9th International Conference on Nitride Semiconductors, ICNS-9*, Glasgow, U.K., July 10 – 15, 2011
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- M. Peres, J. Rodrigues, M. J. Soares, A. J. Neves, T. Monteiro, S. Magalhães, K. Lorenz, N. Franco, J. G. Marques, E. Alves, Influence of neutron irradiation and annealing on the structural and optical properties of GaN, *Spring Meeting of the European Materials Research Society (E-MRS)*, Symposium F: Group III nitrides and their heterostructures for electronics and photonics, May 8-13, 2011, Nice, France.
- N. Catarino, E. Nogales, N. Franco, V. Darakchieva, B. Méndez, E. Alves, K. Lorenz, Damage formation and optical activation of Eu-implanted non-polar and polar GaN, *Spring Meeting of the European Materials Research Society (E-MRS)*, Symposium F: Group III nitrides and their heterostructures for electronics and photonics, May 8-13, 2011, Nice, France.
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- P. Miranda, U. Wahl1, N. Catarino, K. Lorenz, J.G. Correia, E. Alves, Damage formation and recovery in Fe implanted 6H-SiC, *REI 16*, August, 2011, Peking, China.
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