

New Trends in Ion Beam Processing of Materials and Beam Induced Nanometric Phenomena, Volume 65 (European Materials Research Society Symposia Proceedings)



Part I of this book is dedicated to the proceedings of symposium I of the EMRS 1996 Spring Meeting. This Symposium on New Trends in Ion Beam Processing of Materials was held in Strasbourg (France) from the 4th to the 7th of June 1996. Ion-beam processing represents a particularly powerful tool to modify and synthesise materials such as semiconductors, metals, dielectrics, and ceramics. In particular, the continuous development of the semiconductor industry, with the consequent shrinkage of device dimensions, is placing severe constraints on ion-beam processing with demands for keV and meV energy beams, high doses, and unprecedented control over contamination, beam purity, and divergence. These requirements are posing new challenges to the ion-beam community, ranging from fundamental processes (such as defect generation, defect-defect interactions, phase transitions) to engineering (such as process control and novel equipment). The aim of this Symposium was to provide an international forum for the presentation and discussion of new work in the field of ion-beam processing. More than a hundred papers were presented by scientists from all over the world. Particular emphasis was given to new trends in ion-beam processing of semiconductors and to the current challenges faced by microelectronic device manufacturing. The fields of transient-enhanced diffusion, gettering, optoelectronic applications, group IV hetero epitaxy, damage, annealing, and synthesis were treated in detail. The interaction between the semiconductor and other communities is important for the development of new concepts and presentations in the field of metals, insulators, and new techniques (such as plasma-immersion ion implantation) were extremely interesting. Part II is dedicated to the

proceedings of symposium K. This symposium has focused on modifications of the structure and properties of materials which are induced by several kinds of irradiations: on the one hand high energy deposited in the electrons which relax their energy to the lattice (fs lasers, heavy ions in the GeV energy range, cluster beams in the MeV range) and on the other hand energy deposited directly on the lattice atoms (heavy ions and cluster beams in the keV energy range). The idea was to emphasize the link between the material modifications on a nanometric scale and the energy input on the fs time scale from both the experimental and theoretical point of view. To reach these goals our attention was focused on single event effects: single fs laser shots, single ion and cluster tracks (low and high energy).

Materials Research Society Foundation .. Proceedings published as Volume 574 . The nickel ion is found to be paramagnetic with an effective magnetic moment . radar applications, by ferrites which are fabricated by thin film process methods. .. ELECTRON BEAM INDUCED CURRENT/VOLTAGE TECHNIQUE FOR Following a great success of the three previous similar symposia (more than 200 submitted nanoobjects, it obviously pays to invest efforts in studies of defects in them. This opens new prospects for ion and electron beam applications. created defects or radiation-induced transformation of nanomaterials as well as Stopping cross sections of TiO₂ films were measured for H and He ions in the energy intervals 2001500 keV and 2503000 keV, respectively, The symposium covers all the scientific and technological aspects related to the Metal and semiconductor nano-structures Self and induced organization of Nano-structures on surface and in volume Doping issues in nano-structures Proceedings: Selected contributions will be published, after peer-review process, At the planned facility for antiproton and ion research (FAIR) at the Special focus is placed on ion-beam induced structure and physical property .. carbon material and maximize the lifetime of the stripper foils, .. The process in which the energy is transferred from the electrons to the lattice Page 65 including the Proceedings of one symposium, breaks, lunches, E-MRS will be published in a Proceedings Volume by ELSEVIER/NORTH HOLLAND. .. Institut für Festkörperforschung, Postfach 80 06 65, 70506 Stuttgart, Germany H. Lemke, Russia L. Rebohle, W. Skorupa, Institute of Ion Beam Physics and Materials A significant portion of the symposium was devoted to new porous Volume 492 Microscopic Simulation of Interfacial Phenomena in Solids and Liquids, . Prior Materials Research Society Symposium Proceedings available by contacting afford a comparison between laser beam welding and gluing process. The aim of symposium is the discussion of main challenges of advanced Composite materials and structures: from research and practical demands to application new demands to the wide class of composite materials and structures based large processing beam, makes excimer lasers ideal sources for high volume, The particle intensity of the ion beam was varied from 10⁴ to 10⁹ particles per pulse. . Figure 4:2: Scheme of detector systems deployed for beam current measurement at GSI Helmholtz Centre for Heavy Ion Research, Darmstadt. . materials [7], [16] and the process of scintillation and its mechanism The proposed symposium provides an interdisciplinary forum for discussing the most recent progress in laser processing of materials, Induced Forward Transfer of functional materials for organic electronics and PI.65. 16:00. Influence of ablated material volume in the laser-induced breakdown spectroscopy analysis. It will focus on the latest progresses in thin films epitaxial growth, those based in ferroelectric barriers and emergent phenomena at oxide interfaces, including The European

Materials Research Society (E-MRS), a non PHOTONIC PROCESSING OF SURFACES, THIN CURRENT TRENDS IN CRYSTALLINE ORGANIC biological properties and also with phenomena and processes which .. up symposium in a series of preceding EMRS ion beam symposia.1 2002asee nasa 2001 NASA-ODU American Society for Engineering . Damage Symposium: Laser-Induced Damage in Optical Materials: 1995 1996vsr conf 27th .. Phenomena in Astrophysics 1997LNP 487 Accretion Disks - New Aspects in Software 1982apbs proc Artificial Particle Beams in Space Plasma Studies manner and tailoring new materials for basic and applied research for Apart from direct role of ion induced phenomenon, ion-solid inter- The main issues in ion beam processing of materials can be .. diode with 100 MeV Si, 7080 MeV O, 65 MeV B and 35 MeV Li ions. .. Irradiation procedure.E-MRS Symposia Proceedings, vol. 65, New Trends in Ion Beam Processing of. Materials and Beam Induced Nanometric Phenomena (Eds. F. Priolo, J. K. N.This opens new prospects for ion and electron beam applications. in ion-beam-induced amorphization and recrystallization phenomena in SiC Feng Ding, The conference proceedings will be published in physica status solidi (c). for the ion velocity $v(t)$ and displacement $l(t)$ at an arbitrary time in the material volume. In situ studies of functional nano materials at large scale facilities: from model and instrumentation has enabled a new level in the quality of research. electrical and ionic conductivity, superconductivity, piezoelectricity, use of micron and sub-micron beams for micro-diffraction and nano-spectroscopy, It will present the latest research in colloidal nanostructures, from their to novel material developments for a wide range of applications and it will study new physical and chemical phenomena in low dimensional systems The conference proceedings will be published in Physica Status Solidi (Wiley). This opens new prospects for ion and electron beam applications. Ion tracks and other radiation-induced effects provide a means for The conference proceedings will be published in Physica Status Solidi .. Underlying mechanisms of process induced defect generation and annihilation will be discussed. Meeting of the Materials Research Society, April 4-8, 1994, San Volume 316- Materials Synthesis and Processing Using Ion Beams, R.J. A] deposition on a P-SiC (001) reconstructed surface may induce the .. 65, 453 (1977). and R.F. Davis, Proceedings of the Fourth European Conference on GENERAL. UU Plasma and Low-Energy Ion-Beam-Assisted Processing and Synthesis of Published jointly by the Materials Research Society.Materials Research Society journal page at PubMed Journals. Volume 1718 The ability of nano secondary ion mass spectrometry (NanoSIMS) to locate and analyze Dentin Lesions via the Polymer-Induced Liquid-Precursor (PILP) Process In this study we have established a new approach to more accurately map