



22nd INTERNATIONAL CONFERENCE ON ION BEAM MODIFICATION OF MATERIALS

10-15 July 2022, Lisbon-Portugal

	Sunday, July 10
17:00 – 20:00	Registration + Welcome reception
	Monday, July 11
08:00 – 17:00	Registration
08:30 – 09:00	OPENING SESSION
09:00 – 09:40	Plenary Lecture: David Jamieson Ion Beam Modification of Materials: from Earth to Space
	SESSION: Basic Mechanisms and Irradiation Effects
	<i>Chairs: William Weber & Michael Nastasi</i>
09:40 – 10:10	Invited Lecture: Steven Zinkle Fundamental Radiation Effects in Materials due to Ion Bombardment
10:10 – 10:30	<i>Oral 01 – Stephen Donnelly</i> Ion-irradiation-induced Grain Boundary Formation in Self-ion Irradiated Nickel
10:30 – 10:50	<i>Oral 02 – Mariana Timm</i> Influence of dpa Rate on Carbide Precipitation and Ar Bubble Growth in AISI 316L Alloys Irradiated with Au and Ag Ions
10:50 – 11:10	<i>Oral 03 – Kai Nordlund</i> Strong Crystal Grain Orientation Effects on Ion Sputtering
11:10 – 11:40	<i>Coffee-break</i>
11:40 – 12:00	<i>Oral 04 – Lin Shao</i> A Quantitative Method to Determine the Region not Influenced by Injected Interstitial and Surface Effects in Ion-irradiated Metals
12:00 – 12:20	<i>Oral 05 – Parikshit Phadke</i> Low Energy Ion Interactions with Transition Metal Films-ballistic and Diffusive Transport Processes
12:20 – 12:40	<i>Oral 06 – Claudia Montanari</i> Stopping Power in Very Heavy Targets: from Lanthanides to Post-transition Metals
12:40 – 14:00	Lunch
	<i>Chair: Robert Elliman</i>
14:00 – 14:30	Invited Lecture: Matheus Tunes (IBMM prize) The Solar System as a New Frontier for Materials at Extremes
14:30 – 14:50	<i>Oral 07 – Weilin Jiang</i> Microstructural Evolution and Deuterium Diffusion in γ -LiAlO ₂ Irradiated with He ⁺ and D ⁺ Ions
14:50 – 15:10	<i>Oral 08 – Gihan Velisa</i> Revealing the Onset of Unprecedented Transition from Synergistic to Competitive Effect in Defective KTaO ₃
15:10 – 15:30	<i>Oral 09 – William Weber</i> Inelastic Interactions of Ions with Disordered Oxide Perovskites
15:30 – 15:50	<i>Oral 10 – Marta Dias</i> Synthesis and Irradiation Response of High Entropy Alloys with Transition and Refractory Metals for Operation at Extremes
15:50 – 16:20	<i>Coffee-break</i>
	<i>Chair: Kai Nordlund</i>
16:20 – 16:50	Invited Lecture: Yanwen Zhang Ion Beams: Unique Tools to Study Radiation Effects in Complex Alloys
16:50 – 17:10	<i>Oral 11 – Cyprian Mieszczyński</i> Combining MD-LAMMPS and MC-McChasy 2.0 Codes for Dislocation Simulations of Ni-based Alloys
17:10 – 17:30	<i>Oral 12 – Mohamed El-Bakouri El-Haddaji</i> Basic Study of the Relaxation Volume of Crystalline Defects in bcc Iron
17:30 – 17:50	<i>Oral 13 – Daniel Primetzhofner</i> Electronic Excitations of keV Ions in Single-crystalline Self-supporting Targets
17:50 – 18:10	<i>Oral 14 – Joseph Graham</i> Dynamics of Self-trapped Exciton Formation, Hopping, and Recombination within an Ion Track in Silica



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Tuesday, July 12	
SESSION: Ion Beam Processing of Materials	
<i>Chair: Stephen Donnelly</i>	
09:00 – 09:30	Invited Lecture: Aurélie Gentils Ion Beam Synthesis of Nano-Oxides: Towards an Understanding of Precipitation in Oxide Dispersion Strengthened Steels
09:30 – 09:50	<i>Oral 15 – Sérgio Magalhães</i> Modelling the Strain Build-up in Nitrogen Implanted Tungsten Films on Silicon Substrates
09:50 – 10:10	<i>Oral 16 – Shengqiang Zhou</i> Tailoring Oxide Thin Films by Ion Beams
10:10 – 10:30	<i>Oral 17 – Ovidio Peña Rodríguez</i> Elongation Kinetics of Plasmonic Nanoparticles Studied <i>in situ</i> by Po-Larized Optical Absorption Spectroscopy
10:30 – 11:00	<i>Coffee-break</i>
<i>Chair: Aurélie Gentils</i>	
11:00 – 11:30	Invited Lecture: Marek Rubel Ion-induced Modification and Ion Beam Analysis of Diagnostic Components for Fusion Reactors
11:30 – 11:50	<i>Oral 18 – Yongqiang Wang</i> In-situ Positron Annihilation Spectroscopy for Materials Characterization Under Coupled Irradiation Extremes
11:50 – 12:10	<i>Oral 19 – Eduardo Pitthan</i> Electronic Stopping Power of Pristine and Ion Irradiated Plasma Facing Materials for Light Ions
12:10 – 12:30	<i>Oral 20 – Zhongwen Yao</i> Energetic Helium Ion Implantation to Emulate the In-reactor Neutron Damages in Ni Superalloy
12:30 – 14:00	<i>Lunch</i>
<i>Chair: David Jamieson</i>	
14:00 – 14:30	Invited Lecture: Michal Bockowski Innovative Approach for Changing Electrical and Optical Properties of GaN
14:30 – 14:50	<i>Oral 21 – Anna Mackova</i> ZnO Nanorods with Au/Ag Nanoparticles Prepared by Ion Beam Implantation – Structural Modification and Optical Properties
14:50 – 15:10	<i>Oral 22 – José Cardoso</i> Demonstration of Red Light-Emitting Devices Based on Europium-Implanted AlN p-n Junction Nanowires
15:10 – 15:30	<i>Oral 23 – Aurélien Debelle</i> Effect of Energy Deposition on the Disordering Kinetics in Dual-beam Irradiated Single-crystalline Si, SiC and GaAs
15:30 – 16:00	SPONSORS: High Voltage Engineering (HVE) & Pantechnik
16:00 – 19:30	POSTER SESSION + REFRESHMENTS
19:30 – 23:00	INTERNATIONAL COMMITTEE MEETING



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Wednesday, July 13	
	SESSION: Ion-driven Self-organization, Nanostructure Synthesis and Nanopatterning
	<i>Chair: Jürgen Fassbender</i>
08:30 – 09:00	Invited Lecture: Stefan Facsco Emergence of Self-organized Surface Patterns under Ion Induced Non-equilibrium Conditions
09:00 – 09:20	<i>Oral 24 – Jean Paul Allain</i> Correlating Surface Nano Patterning and Compositional Changes Under Low-Energy Ion Beam Irradiation of Disordered Alloys
09:20 – 09:40	<i>Oral 25 – Andrés Redondo-Cubero</i> Highly Ordered Silicide Ripple Patterns Induced by Medium-energy Ion Irradiation
09:40 – 10:00	<i>Oral 26 – Denise Erb</i> In-situ Observation of Ion-induced Nanoscale Patterning on a Crystalline Ge(001) Surface
10:00 – 10:30	<i>Coffee-break</i>
	<i>Chair: Andrés Redondo-Cubero</i>
10:30 – 11:00	Invited Lecture: Mukesh Ranjan Low Energy Ion Produced Nanostructuring for Surface Wettability and Sensing Applications in Healthcare
11:00 – 11:20	<i>Oral 27 – Matteo Gardella</i> Tailoring of Two-dimensional Semiconductors Optoelectronic Properties Via Ion Induced Nanopatterning
11:20 – 11:40	<i>Oral 28 – Karl Ludwig</i> X-ray Photon Correlation Spectroscopy Study of Ion Beam Nanopatterning
11:40 – 12:00	<i>Oral 29 – Sukriti Hans</i> Role of Ion Beam Parameters in the Evolution of Self-organized Nanoripple Superimposed by Triangular Features
12:00 – 12:20	<i>Oral 30 – Shiva Choupanian</i> Low-energy Ion Channeling in Nanocubes
12:20 – 13:00	<i>Lunch</i>
13:00 – 23:00	SOCIAL PROGRAMME + BANQUET



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	Thursday, July 14
	SESSION: Defect Engineering, Nano-science and Technology
	<i>Chair: Christina Trautmann</i>
09:00 – 09:30	Invited Lecture: Flyura Djurabekova On Shaping Embedded Metal Nanoparticles by Swift Heavy Ion Irradiation
09:30 – 09:50	<i>Oral 31 – Sjoerd Roorda</i> Density Changes in Amorphous Silicon Provoked by Swift Heavy Ions
09:50 – 10:10	<i>Oral 32 – Miguel Sequeira</i> Swift Heavy Ions Interaction with Group-III Nitride Layered Structures
10:10 – 10:30	<i>Oral 33 – Günther Dollinger</i> Dosimetry of Heavy Ion Exposure to Human Cells Using Nanoscopic Imaging of Double Strand Break Repair Protein Clusters
10:30 – 11:00	<i>Coffee break</i>
	<i>Chair: Sjoerd Roorda</i>
11:00 – 11:30	Invited Lecture: Christina Trautmann Material Science and Nanotechnology with GeV Ion Beams
11:30 – 11:50	<i>Oral 34 – Caroline Bonafos</i> Controlled Synthesis and Plasmonic Properties of Doped Si Nanocrystals Embedded in SiO ₂
11:50 – 12:10	<i>Oral 35 – Przemyslaw Jozwik</i> McChasy 1.0: Modeling of dislocations using Molecular Dynamics for Monte Carlo simulations of ion channeling
12:10 – 12:30	<i>Oral 36 – André Vantomme</i> Towards an Ion-implanted Nuclear Clock
12:30 – 14:00	<i>Lunch</i>
	<i>Chair: André Vantomme</i>
14:00 – 14:30	Invited Lecture: Aliz Simon Ion-beam Driven Materials Science and Quantum Technology Coordinated by the IAEA Physics Section
14:30 – 14:50	<i>Oral 37 – Marco Peres</i> Production of Microtubes and Nanomembranes of Ga ₂ O ₃ by Ion Implantation
14:50 – 15:10	<i>Oral 38 – Martin Hafermann</i> Fast Recovery of Ion-irradiation-induced Defects in Ge ₂ Sb ₂ Te ₅ Thin Films at Room Temperature
15:10 – 15:30	<i>Oral 39 – Pedro Lopez</i> Atomistic Modeling of the Acceptor Removal in p-type Si Induced by Neutron Irradiation
15:30 – 15:50	<i>Oral 40 – Susana Freitas</i> MgO Thin Film Texture Control Using Low Energy Ion Beam Assisted Deposition
15:50 – 16:10	<i>Oral 41 – Lucas Colonel</i> Pressurized Crack Gas Exchange in Ion Implanted Silicon
16:10 – 19:00	POSTER SESSION + REFRESHMENTS



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	Friday, July 15
	SESSION: New Accelerator Systems and Single Ion Implantation
	<i>Chairs: Katharina Lorenz & Roger Webb</i>
09:00 – 09:30	Invited Lecture: Kristian Stockbridge Single Ion Implantation by the Detection of Secondary Electrons
09:30 – 09:50	<i>Oral 42 – Ulrich Wahl</i> Fabrication of Diamond Quantum Colour Centres in “split-vacancy” Configuration Using Ion Implantation
09:50 – 10:10	<i>Oral 43 – Milan Vićentijević</i> Detection of Single Low-Penetrating Ions in Diamond
10:10 – 10:30	<i>Oral 44 – Ella Schneider</i> Isotopically Enriched ²⁸ Si Substrates for Quantum Computers Using Ion Implantation Layer Exchange: Experimental Results
10:30 – 11:00	<i>Coffee-break</i>
11:00 – 11:20	<i>Oral 45 – Jonathan England</i> Experiments and Modelling to Understand the Production of Isotopically Pure Si and Ge Layers by Implanted Layer Exchange for Quantum Computing
11:20 – 11:40	<i>Oral 46 – Paulo Fichtner</i> Elastic Electron Scattering Experiments: an Alternative to Light Ion Irradiation
11:40 – 11:50	AWARDS CEREMONY
11:50– 12:00	CLOSING REMARKS
12:00-13:00	<i>Lunch</i>

2022-07-11