

Programme

Tuesday 18 June 2024

Time	Room	Programme
9:00 am to 10:00 am	Auditorium	Plenary Talk: Prof. Mark J. Kushner Session Chair: Julian Held Progress Towards the Digital Twin for Plasma Microelectronics Fabrication
9:00 am to 12:00 am	Theatre, Hall Q	VTC4 - An Introduction to Leak Detection Trainer: Johann Peitl, Leybold Vacuum
10:00 am to 10:30 am	Hall Q	Morning Break
10:30 am to 12:30 pm	Auditorium	Electronic Structure of Materials, Surfaces and Interfaces - TuPS1A: ASS+SS+SE Session Chair: Nina Schalk Invited Talk: Roberto Hiroki Miwa 10:30 am – 11:00 am Roberto Miwa: PtSe ₂ /metal interfaces: electronic and electronic transport properties, and the access to the topological gap in PtSe ₂ [VSe] monolayer 11:00 am - 11:15 am Dr. Masahiro Haze: Surface conductivity on metal monolayer films formed on Si studied by low temperature scanning tunneling microscopy/potentiometry 11:15 am – 11:30 am Mr. Yuki Higuchi: Determination of the actual valence band of Bi ₂ Se ₃ 11:30 am - 11:45 am Dr. Wei-Bin Su: Searching for the evidence of correlated two-electron tunneling in field emission resonance from light emission on Ag surfaces 11:45 am - 12:00 pm Dr. Lee Jones: Photocathode Electron Source R&D at Daresbury Laboratory
	King's Suite	Oxide Surfaces and Nanomaterials - Spectroscopy, Imaging and Physicochemical Processes - TuPS1K: ASS+SS+SE Session Chair: Amalia Patane Invited Talk: Martin Setvin 10:30 am – 11:00 am Martin Setvin: Imaging and tracking polarons in Fe ₂ O ₃ and SrTiO ₃ by atomic force microscopy 11:00 am - 11:15 am Leonhard Winter: Surface Chemistry of Trimethylaluminum and its Implications for Atomic Layer Deposition 11:15 am - 11:30 am Dr. Jade Barreto: An XPS Study of the Ionic Liquid Adsorbed on Thin Films 11:30 am - 11:45 am Georg Fickenscher: Atomic Layer Deposition of HfS ₂ on Pristine and Functionalized Oxide Interfaces: Model Studies from Surface Science
	Queen's Suite - Dewar Room	Biomaterials 1 - TuPS1D: BIME Invited Talk: Suwan Jayasinghe 10:30 am – 11:00 am Professor Suwan Jayasinghe: Cell electrospinning: revolutionising tissue engineering and regenerative medicine 11:00 am - 11:15 am Dr. Monu Mishra: Functionalizing GaN surfaces for enhanced soft tissue integration in biomedical applications

		<p>11:15 am - 11:30 am Prof. Miguel Manso Silván: A generic green chemistry surface biofunctionalization cascade; an enzyme activated antibacterial coating</p> <p>11:30 am - 11:45 am Professor Pedro Nascente: Ti-Nb-Zr Ternary Alloy Coatings Produced by Magnetron Sputtering</p> <p>11:45 am - 12:00 pm Dr Arunprabhu Arunachalam Sugumaran: CrN/NbN and TiN/NbN nanoscale multilayer coatings deposited by high power impulse magnetron sputtering for biomedical applications</p>
	Queen's Suite - Thomson Room	<p>Thin Film Growth Simulation - TuPS1T: TF</p> <p>Session Chair: Andrea Picone</p> <p>Invited Talk: Rafael Alvarez</p> <p>10:30 am - 11:00 am Dr. Rafael Alvarez: Porous nanocolumnar thin films deposited at glancing angles: fundamentals and applications</p> <p>11:00 am - 11:15 am Professor Diederik Depla: How to calculate an oxide sputter yield?</p> <p>11:15 am - 11:30 am Jyri Kimari: Machine-learning-augmented simulation of thin metal film growth on weakly-interacting substrates</p> <p>11:30 am - 11:45 am Karel Mašek: Cobalt oxide based model system - growth and structure studies</p> <p>11:45 am - 12:00 pm Roberto Bergamaschini: Simulations of strained films evolution: extending accessible timescales through Convolutional Neural Networks</p>
	Queen's Suite - Cockcroft Room	<p>Large Vacuum Systems of Particle Accelerators - TuPS1C: VST</p> <p>Session Chair: Keith Middleman</p> <p>Invited Talk: Vincent Baglin</p> <p>Feature Talk: Matthew Cox</p> <p>10:30 am - 11:00 am Vincent Baglin: The high-luminosity large hadron collider vacuum system</p> <p>11:00 am - 11:15 am Sunil Patel: Vacuum Upgrades & Developments at ISIS - The UK Neutron and Muon Research Facility</p> <p>11:15 am - 11:30 am Hugo Shiers: Diamond-II Vacuum Instrumentation & Interlock Systems</p> <p>11:30 am - 11:45 am Mr. Stefan Wilfert: The vacuum system of SIS100 at FAIR - First operating experience gained during the string test</p> <p>11:45 am - 12:00 pm Thanapong Phimsen: Progress in Vacuum System Design for Thailand's New Light Source</p> <p>12:00 pm - 12:20 pm Dr Matthew Cox: The Diamond-II Vacuum System</p>
	Queen's Suite - Walton room	<p>MS-1: Recent Developments in Surface Microscopy - TuPS1W: MS</p> <p>Session Chair: Dr. Matthew Bergin</p> <p>Invited Speaker: Andrew Pollard</p> <p>10:30 am - 11:00 am Dr Andrew Pollard: The importance, challenges and solutions for measuring 2D materials</p> <p>11:00 am - 11:15 am Prof Paul Dastoor: Neutral Atom Microscopy: Science and Applications</p> <p>11:15 am - 11:30 am Dr. Sam Lambrick: Monolayer exfoliated MoS₂ studied with Atom micro diffraction</p> <p>11:30 am - 11:45 am Sabrina Daniela Eder: Reflection imaging with a helium zone plate microscope</p> <p>11:45 am - 12:00 pm Min Lin: DFT-Based Simulation of Helium Interaction Potentials with MoS₂ Surfaces for Scanning Helium Microscopy Applications</p> <p>12:00 pm - 12:15 pm Dr Matthew Bergin: Studying 2D materials with spatially resolved atom diffraction in scanning helium microscopy</p>
12:30 pm to 2:00 pm	Hall Q	Lunch
2:00 pm to 5:00 pm	Theatre, Hall Q	<p>VTC2 - Vacuum in Practice - Atmosphere to High Vacuum</p> <p>Trainer: Richard Pilkington</p>

2:00 pm to 3:30 pm	Auditorium	<p>2D Semiconductors - TuPS2A: ASS+SS+SE Session Chair: Roberto Hiroki Miwa Invited Speaker: Amalia Patane 2:00 pm - 2:30 pm Professor Amalia Patane: A new facility for growth and study in UHV of two-dimensional semiconductors 2:30 pm - 2:45 pm MSc Eng. Piotr Kałuziak: Fabrication of Thin-layer InSb-based Planar Devices 2:45 pm - 3:00 pm Francesco Carla: An electrochemical approach to the growth of semiconductor thin films 3:00 pm - 3:15 pm Hidehito Asaoka: Reversibility in aligned step direction on an on-axis Si 16×2 single-domain surface</p>
	King's Suite	<p>Thin Film and Particle Deposition, 2D - TuPS2K: ASS+SS+SE Session Chair: Maciej Rogala Invited Speaker: Nina Schalk 2:00 pm - 2:30 pm Nina Schalk: Unprecedented insights into microstructure-property relations of Ti(Al)SiN coatings by combinatorially applied advanced characterization methods 2:30 pm - 2:45 pm Justin Wells: Tunable Electron-Phonon Coupling in Hexagonal Boron Nitride</p>
	Queen's Suite - Dewar room	<p>Biomaterials 2 and Bioengineering - TuPS2D: BIME Session Chair: Miguel Manso Silván Invited Speakers: Marcus Rohnke and Michael Bryant 2:00 pm - 2:30 pm Prof. Marcus Rohnke: Characterisation of sodium ion batteries - from post-mortem to operando analysis 2:30 pm - 2:45 pm Jikai Zhang: Flexible thin film surface acoustic wave technology for transdermal drug delivery 2:45 pm - 3:00 pm Professor Michael Bryant: Engineered surfaces for biotribological applications: a soft solution for a hard problem?</p>
	Queen's Suite - Thomson room	<p>Nanoparticles - TuPS2T: NS Session Chair: Giada Franceschi Invited Speaker: Yukiko Yamada-Takamura 2:00 pm - 2:30 pm Yukiko Yamada-Takamura: Novel 2D materials stabilized on surfaces 2:30 pm - 2:45 pm Slavica Stankic: 3D (metal) vs. 2D (oxide) nanoparticles on MgO smoke 2:45 pm - 3:00 pm Dr Juan D. Olarte-Plata: Particle deposition by droplet evaporation: the role of surface interactions 3:00 pm - 3:15 pm Doctor Pilar Ferrer: Surface and bulk structure of spinel nanoparticles MFe₂O₄</p>
	Queen's Suite - Cockcroft room	<p>Non-evaporable getter coatings - TuPS2C: VST Session Chair: Oleg Malyshev Invited Speaker: Reza Valizadeh 2:00 pm - 2:30 pm Reza Vakizadeh: NEG as a multifunctional coating: pro & cons, present limitations & possible developments/applications for future machines 2:30 pm - 2:45 pm Miss Eleni Marshall: Lifetime and Activation Effect of Non Evaporable Getter Coatings 2:45 pm - 3:00 pm Dr. Clément Bessouet: Electrical properties of Ti, Zr and V-based binary and ternary getter alloy thin films 3:00 pm - 3:15 pm Chris Burrows: Photon-stimulated desorption studies of TiZrV non-evaporable getter coatings at the Diamond Light Source 3:15 pm - 3:30 pm Dr Ruta Sirvinskaite: Optimising NEG Coating for PETRA IV: Resistivity and Sticking Probability Measurements</p>
3.30 pm to 4:00 pm	Hall Q	Afternoon Break

4:00 pm to 5:30 pm	Auditorium	<p>Metal and Oxide Single Crystal Surfaces - Growth, Preparation, and Characterisation - TuPS3A: ASS+SS+SE Session Chair: Martin Setvin 4:00 pm - 4:15 pm Johan Gustafson: Attempts to control the orientation of PdO on Pd 4:15 pm - 4:30 pm Calley Eads: Tracking Sub-millisecond Compositional Changes During CO Oxidation Using Ambient Pressure X-ray Photoelectron Spectroscopy 4:30 pm - 4:45 pm Ekaterina Tikhodeeva: Study of the formation of silicon nanoribbons on the Au surface 4:45 pm - 5:00 pm Ewa Mlynczak: Structural and electronic properties of ultrathin Sn deposited on Pt studied by low energy electron microscopy 5:00 pm - 5:15 pm Ulrich Hagemann: Temperature dependent initial sticking probability of Mg on Si and SiO₂ surfaces and possible applications in microlithography 5:15 pm - 5:30 pm Prof Masashi Nakamura: Interfacial structure on the Pt electrode modeled under ultrahigh vacuum conditions</p>
	King's Suite	<p>Carbon Materials 1 - TuPS3K: ASS+SS+SE Session Chair: Zamin Mamiyev Invited Talk: Alastair Stacey 4:00 pm - 4:30 pm Prof Alastair Stacey: Diamond surface science for quantum and electronics applications 4:30 pm - 4:45 pm Taiga Hirota: Electronic structure of fullerene derivative thin films with gold doping 4:45 pm - 5:05 pm Professor Andrew Evans: The oxidation of diamond surfaces at near-ambient pressure</p>
	Queen's Suite - Dewar room	<p>ECR-1 - TuPS3D: ECR Invited Talks: Jonathan Brookes and Phill Day 4:00 pm - 5:00 pm Jonathan Brookes: How to get your research funded: Opportunities under the Horizon Europe programme 5:00 pm - 5:30 pm Mr Phill Day: When hundreds engage thousands - the wonderful impacts of opening up a national laboratory to the public</p>
	Queen's Suite - Thomson room	<p>From Nanostructured thin films to nanoparticles. Reactions at nanostructures - TuPS3T: NS Session Chair: Yukiko Yamada-Takamura Invited Talk: Giada Franceschi 4:00 pm - 4:30 pm Dr. Giada Franceschi: Surfaces of cleaved aluminosilicates at the atomic scale 4:30 pm - 4:45 pm Philip Moriarty: Adding a Dimension to Atom-by-Atom Assembly 4:45 pm - 5:00 pm Eleonora Spurio: Influence of air plasma treatments on plasmonic properties and composition of Cu nanoparticles 5:00 pm - 5:15 pm Mr Rafał Dunał: Influence of contamination on MoS₂/Au interface</p>
	Queen's Suite - Cockcroft room	<p>Vacuum Gas Dynamics - TuPS3C: VST Session Chair: Vincent Baglin Invited Talk: Stylianos Varoutis 4:00 pm - 4:30 Dr. Stylianos Varoutis: The Role of Vacuum Gas Dynamics in the Particle Exhaust of Stellarator and Tokamak Fusion Devices 4:30 pm - 4:45 pm Professor Dimitris Valougeorgis: Machine Learning Aided Simulation of Complex Gas Distribution Systems Operating under any Vacuum Conditions 4:45 pm - 5:00 pm Dr. Alexander Marsteller: Velocity slip coefficient measurements at cryogenic temperatures using a Spinning Rotor Gauge 5:00 pm - 5:15 pm Keith Middleman: The Vacuum System Design of FEBE on CLARA at STFC Daresbury Laboratory 5:15 pm - 5:30 pm Alexander Tikhomirov: Simulation of Pressure Distribution and Efficiency of Ion Passage in Vacuum Chambers of the U400R Cyclotron Complex</p>
	Queen's Suite - Walton room	<p>Plasma Science - TuPS3W: PS Session Chair: Mark J. Kushner Invited Talk: Sedina Tsikata</p>

		<p>4:00 pm – 4:30 Professor Sedina Tsikata: Understanding complex features of partially-magnetized deposition plasmas</p> <p>4:30 pm - 4:45 pm Régis Bisson: Simulating plasma-surface interactions with ion and molecular beams experiments: interest for nuclear fusion</p> <p>4:45 pm - 5:00 pm Andrew Gibson: Measurement and modelling of low-pressure inductively coupled plasmas in nitrogen/oxygen mixtures</p> <p>5:00 pm - 5:15 pm Martin Rudolph: Excitation, suppression and generation of spokes in direct current magnetron sputtering discharges</p>
5:30 pm - 7:30 pm	Theatre, Hall Q	<p>VTC5 - Design & Fabrication of Vacuum Chambers</p> <p>Trainer: Sophia Plomer-Thies, Pfeiffer Vacuum</p>

<p>5.30 pm to 7:30 pm</p>	<p>Hall Q</p>	<p>Poster Session 2 and Drinks Reception - Topic: Surface Science Poster Presentations: Aleksandrs Micko: Modification of CdZnTe crystal surface properties by femtosecond laser pulses Mr Rafee Abedin: Ab initio calculation of matter wave interactions with strained surfaces Dr Rezwan Ahmed: Report on New Findings in Low-Energy Positron Diffraction (LEPD) Experiments for Surface Structure Analysis Axel Forssberg: An Atomic Level Investigation of Na on SrTiO₃ Tsuneo Fukuda: First-principles study of displacive diffusion on fcc metal and surfaces Lee Gannon: A comparative X-ray spectroscopic study of on-surface synthesised 2D & 1D porphyrin-derived nanostructures on Au surfaces Ying Gao: Cooperative Self-assembly of C₆₀ and Decanethiol on Au Tairu Ge: MnxNbyOz nanostructures and ultrathin films on Au Masumeh Gholamisheeri: Computational Prediction of Material Properties for New and Improved Superalloys Charlotte Hall: An experimental and theoretical study of Zinc Ferrite Single Crystals Dominik Hruza: Molecular adsorption on support-decoupled 2D Metal-Organic Frameworks: an STM study Patrick Hubert: Effect of subsurface hydrogen on formation and stabilisation of enol form of 2-acetylpyridine Toshio Hyodo: An effective use of total-reflection high-energy positron diffraction for structural analysis of hydrogen atoms on a surface: its application to CeO₂ 1x1-H surface Mr. Justin Klimek: (Photo-)conversion of greenhouse gases on TiO₂-based catalysts Niko Kruse: Synthesis of TiS₂ Nanoclusters on Au Surface as a Model Platform for CO₂ Conversion Bosheng Li: C₇₀ Fullerene Self-Assembled Frameworks on Decanethiol/Au Surface Prof Cormac McGuinness: Spectroscopic studies of on-surface synthesis of chiral graphene nanoribbons on Ag Aoi Mizuhara: One-dimensional fluctuation of Ag overlayers on the Ni surface Connor Fields: An Extended Hueckel Approach to Modelling Molecular Self-Assembly Masahiro Nakayama: Electrostatic properties of POM by frequency modulated EFM combined with Fowler-Nordheim tunneling spectroscopy Professor Pedro Nascente: Formation of Fe nanoparticles on SrTiO₃ MSc Gema Navarro - Study of the adsorption of double thiahelicene on metal surfaces by means of nc-AFM Mr. Sebastian Negrete Aragon - Merging reactive molecular beams and XPS to simulate high-pressure surface reactions Matthew Ord - Unravelling Surface Dynamics: Modelling Diffusion at Low Temperatures with Quantum Trajectories Mr. Masanori Sato - Ab initio study of Pentacene adsorption on the fivefold surface of the Tsai-type Ag-In-Yb quasicrystal Laura Scholz - Temperature-Dependent Electronic Ground-State Charge Transfer in van der Waals Heterostructures Eunji Sim - Origin of various appearance of oxidation in ambient-stable β-InSe Sparsh Tyagi - Formation of Two-Dimensional Ni-HITP Metal-Organic Framework on Au Hirokazu Ueta - Spin effect in surface reactions by atomic hydrogen on Ni Dr. Veronika Vavruňková - Oxidized zirconium alloys - evaluation of the tetragonal phase Ke Wang - Exploring diffractive contrast in scanning helium microscopy Lei Xie - Structural transition of VSe₂ on Au induced by high sensitivity to CO gas Hualin Yang - Size-controlled Cobalt Clusters trapped by a C₆₀ template Ding Yuanqi - Remote regulation on the hydration sites of adenine molecules via derivatization Chenyang Zhao - Multi-detector scanning helium microscopy</p>
-------------------------------	---------------	--

