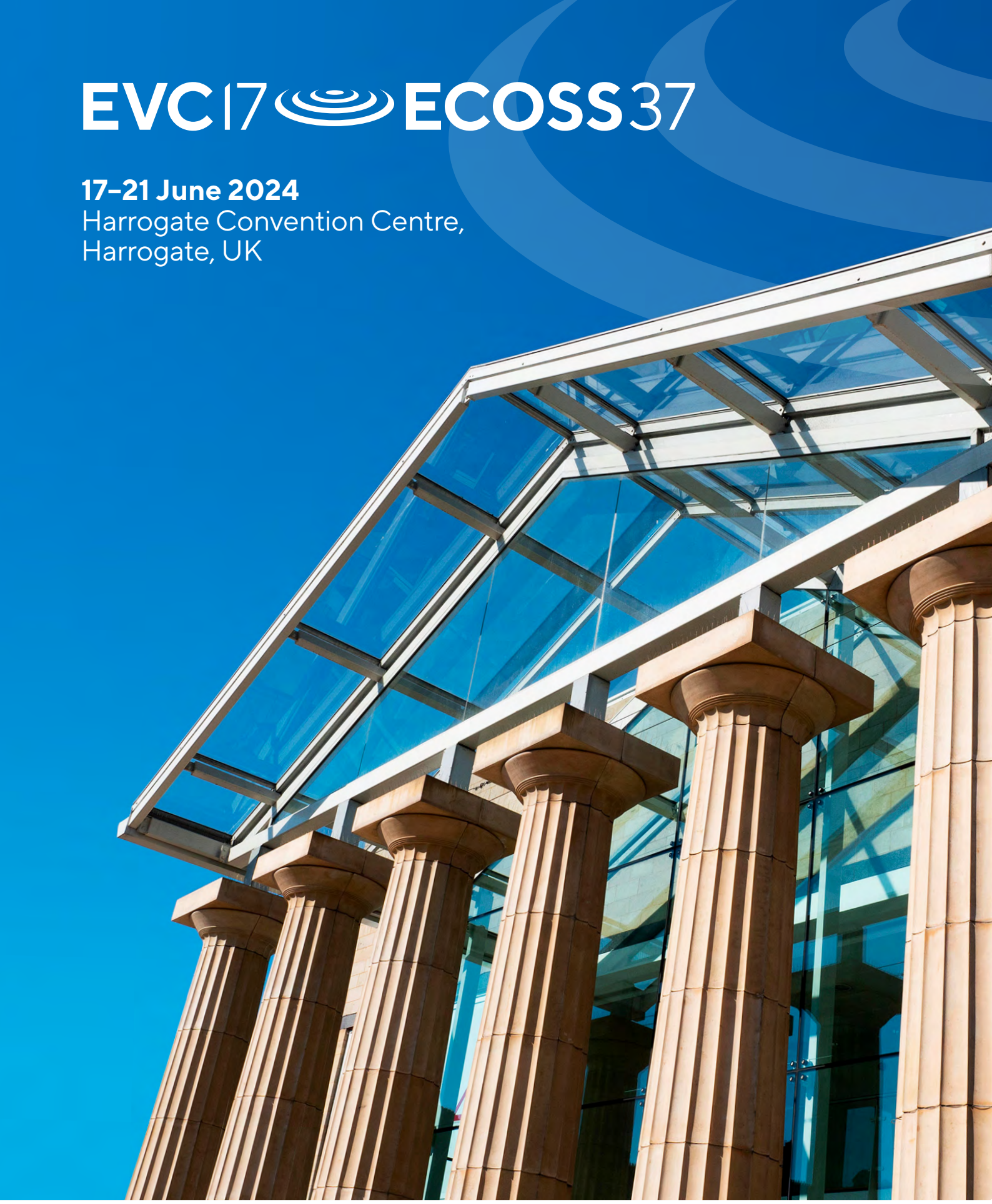
EVC17 ECOSS37

17–21 June 2024
Harrogate Convention Centre,
Harrogate, UK



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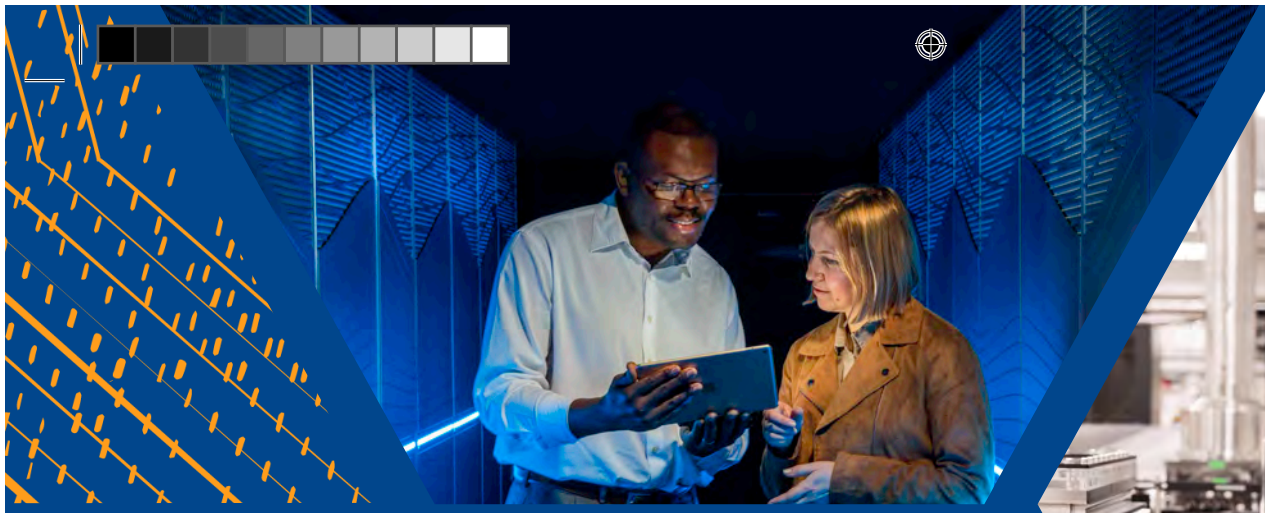

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Programme

Monday 17 June 2024

Time	Room	Programme
8:45 am to 9:30 am		Registration
9:00 am to 12:00 pm	Theatre, Hall Q	VTC3 - Clean Vacuum and UHV Trainer: Keith Middleman
9:30 am to 10:00 am	Auditorium	Opening Session Chairs: Dr. Oleg B. Malyshev and Prof. Martin McCoustra
10:00 am to 10.30 am	Auditorium	Opening Talk: Prof. Jim Clark Session Chairs: Dr. Oleg B. Malyshev and Prof. Martin McCoustra
10.30 am to 11:00 am	Hall Q	Morning Break
11:00 am to 12:35 pm	Auditorium	Advances in Experimental and Theoretical Methods 1 - MoPS1A: ASS+SS+SE Session Chair: Justin Wells Feature Talk: Boyao Liu 11:00 am - 11.15 am Yousef Alharbi: Characterisation of a novel detector and analyser of low-energy electrons for surface analysis 11.15 am - 11:30 am Dr Christopher Walker: Simulations of alternative forms of the Bessel box electron energy analyser 11:30 am - 11:45 am Dr Alex Walton: Probing the solid/liquid interface in X-Ray Phtotoelectron Spectroscopy: A droplet-based approach 11:45 am - 12:00 pm Hermann Nienhaus: Contact electrification monitored with ultra-high sensitivity and microsecond time-resolution 12:00 pm - 12:15 pm Jakub Schusser: Towards Robust Dichroism in Angle-Resolved Photoemission 12:15 pm - 12:35 pm Boyao Liu: Experimental Characterization of Defect-Induced Phonon Lifetime Shortening
	King's Suite	Metal Surfaces - Adsorption, Desorption and Reactions 1 - MoPS1K: ASS+SS+SE Session Chair: Jacek Goniakowski Invited Talk: Hans-Peter Steinrück 11:00 am - 11.30 am Prof. Hans-Peter Steinrueck: Modification of the surface properties of a Pt surface by ionic liquids 11:30 am - 11:45 am Dr. Isheta Majumdar: Ultra-thin metal oxide superstructures grown on Pd as passivation interlayers at the metal/porphyrin interface 11:45 am - 12:00 pm Abdul Rehman: Work Function Dependent Reduction of Transition Metal Nitrides (TMNs) in Hydrogen Environments 12:00 pm - 12:15 pm Al Rossin: Understanding the passivation layer formed by tolyltriazole on copper, bronze, and brass surfaces 12:15 pm - 12:30 pm Miss Ines Bertaso: The adsorption and reactivity of N-heterocyclic carbenes on ultrathin films of reactive metals on Au

	Queen's Suite - Thomson Room	**Low-dimensional Thin Film Materials - MoPS1T: TF** **Session Chair: Maarit Karppinen** **Invited Talk: Rebecca Clulow** **11:00 am - 11:30 am Dr Rebecca Clulow**: High entropy proton conducting perovskites for solid oxide fuel cells **11:30 am - 11:45 am Msc Eng. Jan Raczynski**: Thermal evolution of the metal/PtSe2 systems studied by Raman Spectroscopy **11:45 am - 12:00 pm Thiago De Souza Lamim**: Growth dynamics and mechanical properties of TiAl(Si)N monolayers and multilayers deposited by HiPIMS on Si and WC-Co substrates **12:00 pm - 12:15 pm Dr Nilanthy Balakrishnan**: Substrate-induced strain in molybdenum disulfide thin films grown by aerosol-assisted chemical vapour deposition **12:15 pm - 12:30 pm Daria M. Cegiełka**: N-heterocyclic carbenes – The design concept for densely packed and thermally ultra-stable aromatic self-assembled monolayers
	Queen's Suite - Cockcroft Room	**Large Vacuum Systems - MoPS1C: VST** **Session Chair: Junichiro Kamiya** **Feature Talk: Carlo Scarcia** **11:00 am - 11:15 am Luisa Spallino**: Low energy electron irradiation as mitigation strategy for two potential showstoppers in future gravitational wave detectors **11.15 am - 11:30 am Qingzhou Yu:** Investigation of the X-type metal seal for future fusion reactor **11:30 am - 11:45 am Dr Chris Peters**: Optimising high integrity vacuum viewport design and manufacture **11:45 am - 12:05 pm Carlo Scarcia**: The Einstein Telescope beampipe vacuum
12:30 pm to 2:00 pm	**Hall Q**	**Lunch**
12:30 pm to 1:30 pm	**Hall Q**	**Maximising The Benefits of Your Membership** **Speaker: Matthew Lovell**
2:00 pm to 3:30 pm	**Auditorium**	**Advances in Experimental and Theoretical Methods 2** - MoPS2A: ASS+SS+SE **Session Chair: Philip Moriarty** **Invited Talk: David Duncan** **2:00 pm - 2:30 pm Dr David Duncan**: Understanding the structure of two dimensional films using X-ray standing waves **2:30 pm - 2:45 pm Hanna Sjö**: Spatially resolved surface X-ray diffraction on polycrystalline surfaces **2:45 pm - 3:00 pm Oskar Fossberg**: Spectro-microscopy in the scanning field emission microscope **3:00 pm - 3:15 pm Dr. Debora Pierucci**: Operando Nanobeam Soft X-ray Microscopy: Unveiling the Energy Landscape of Nanocrystal-Based Devices **3:15 pm - 3:30 pm Koichiro Yaji**: Development of imaging-type spin-resolved photoemission microscopy apparatus
	King's Suite	**Metal Surfaces - Adsorption, Desorption and Reactions 2 - MoPS2K: ASS+SS+SE** **Session Chairs: Letizia Savio and Hans-Peter Steinrück** **Feature Talk: Jacek Goniakowski** **2:00 pm - 2:15 pm Michael Furlan:** Oxygen capture and storage in the Nb2O3 (2x2) Honeycomb lattice on Au **2:15 pm - 2:30 pm Dr. Burcu Karagoz:** Surface chemistry of methyl acetoacetate and aspartic acid on Cu – a model for enantioselective hydrogenation reactions **2:30 pm - 2:45 pm Peter McBreen:** Structure and Dynamics of Chirality-Transfer Complexes on Pt **2:45 pm - 3:00 pm Dr. Thiruvancheril Gopalakrishnan Gopakumar:** Temperature dependent disassembly analysis of a molecular adlayer reveals molecule-molecule and molecule-surface interaction energies separately **3:00 pm - 3:20 pm Jacek Goniakowski:** Planar Niobium Oxide Clusters on the Au Surface

	Queen's Suite - Dewar room	**Supported Nanostructures - MoPS2D: NS** **Session Chairs: Anna Rosławska and David Ward** **Invited Talk: László Óvári** **2:00 pm - 2:30 pm Dr László Óvári**: Hexagonal boron nitride monolayers on metals and alloys: relevance for templating and model catalysis **2:30 pm - 2:45 pm Dr. María Sánchez-Loredo**: Modification of the surface of a macroporous Ni electrocatalyst for hydrogen production using Ag and Pd nanostructures **2:45 pm - 3:00 pm Irena Padniuk**: On-surface synthesis of sulphur and oxygen-doped eleven-ring analogues of acenes **3:00 pm - 3:15 pm Dr Michael Hunt**: Self-Organised Nanostructuring of Solid Surfaces by Ion Beam Irradiation **3:15 pm - 3:30 pm Andreas Walz**: Soft-Landing meets Mass-Spectrometry - gentle UHV deposition for large, reactive or fragile molecules to create functional nano-architectures
	Queen's Suite - Thomson room	**Functional Coatings 1 - MoPS2T: TF** **Session Chair: Rebecca Clulow** **Invited Talk: Jolanta Klemberg-Sapieha** **2:00 pm - 2:30 pm Jolanta Klemberg-sapieha**: Functional coatings for aerospace applications **2:30 pm - 2:45 pm Sarka Zuzjakova**: W–Zr thin-film metallic glasses: Thermal behavior and evolution of properties **2:45 pm - 3:00 pm Mr. Francisco Javier Fernández Alonso**: Boosting Visible Light Photocatalysis with Synergistic Plasmonic Effect and Electron Trapping on Au-loaded Se-doped Ta2O5 Heterostructures **3:00 pm - 3:15 pm Luca Repetto**: How substrate roughness affects dewetting: an analysis based on the thin film equation **3:15 pm - 3:30 pm Matjaž Spreitzer**: Robust SrTiO3 Passivation of Silicon Photocathode by Reduced Graphene Oxide for Solar Water Splitting
	Queen's Suite - Cockcroft room	**Special Surfaces and Outgassing - MoPS2C: VST** **Session Chair: Reza Valizadeh** **Invited Talk: Valentine Petit** **2:00 pm - 2:30 pm Valentine Petit**: Surface technology for electron multipacting mitigation in the Large Hadron Collider vacuum system: developments towards in-situ implementation **2:30 pm - 2:45 pm Dr. Marcelo Juni Ferreira**: ESS vacuum system commissioning **2:45 pm - 3:00 pm Alexander Tikhomirov**: Simulation of Pressure Distribution and Efficiency of Ion Passage in Vacuum Chambers of the U400R Cyclotron Complex **3:00 pm - 3:15 pm Ivo Wevers**: Outgassing rate behaviour of selected polymers used in vacuum systems of particle accelerators
2:00 pm to 5:00 pm	**Theatre, Hall Q**	**VTC1 - Vacuum - The Basic Principles** **Trainer: Stuart Astin**
3.30 pm to 4:00 pm	**Hall Q**	**Afternoon Break**
4:00 pm to 5:35 pm	**Auditorium**	**Advances in Experimental and Theoretical Methods 3 - MoPS3A: ASS+SS+SE** **Session Chair: David Duncan** **Invited Talk: Philip Moriarty** **4:00 pm - 4:15 pm Dr. Shota Takahashi**: Pioneering tip-enhanced near-field nonlinear nanospectroscopy of interfacial molecules beyond the diffraction limit **4:15 pm - 4:30 pm Marta Chabowska**: A non-obvious source of surface meandering **4.30 pm - 4.45 pm Magdalena Załuska-Kotur**: Impurities as a source of regular patterns on the surface **4:45 pm - 5:00 pm Mr Dylan Barker**: Automated Classification of the State of a Scanning Probe Tip without Machine Learning

		5:00 pm - 5:15 pm Roberto Bergamaschini: Interplay of crystal faceting, wetting interactions and substrate geometry in solid-state dewetting and selective-area growth: a phase-field approach **5:15 pm - 5:35 pm Philip Moriarty**: Can tunnel current fluctuations accurately track molecular diffusion?
	King's Suite	**Spin Physics - MoPS3K: ASS+SS+SE** Invited Talk: Federico Mazzola **4:00 pm - 4:30 pm Federico Mazzola:** Hide and seek in the electron's world **4:30 pm - 4:45 pm PhD researcher Maha Alotaibi:** Exploring Spinterface Formation of Sexithiophene (6T) on Fe3O4: Insights into Interface Engineering for Enhanced Functionalities
	Queen's Suite - Dewar room	**MS-2: Light-matter Interaction at Atomic Scales - MoPS3D: MS** **Session Chairs: Alberto Martín Jiménez and Anna Roslawska** **Invited Talk: Pablo Merino** **4:00 pm - 4:30 pm Dr. Pablo Merino**: Scanning probe microscopy as a tool for nano-optical measurements **4:30 pm - 4:45 pm Yang Luo**: Femtosecond time-resolved spectroscopy at the atomic scale **4:45 pm - 5:00 pm Jaime Abad-Arredondo**: Electronic probing and manipulation of nanophotonic phenomena **5:00 pm - 5:15 pm David Mateos Roncero**: Directional picoantenna behaviour of tunnel junctions in the presence of atomic-scale defects **5:15 pm - 5:30 pm Mr Miguel Varea**: Light-matter interaction of field emission resonances in a scanning tunneling microscope
	Queen's Suite - Thomson room	**Functional Coatings 2 and Superconducting Thin Films - MoPS3T: TF** **Session Chair: Jolanta Klemberg-Sapieha** **4:00 pm - 4:15 pm Dr. Aleksandr Zubtsovskii**: Deposition study of NbTiN superconducting thin films prepared by reactive DC and HiPIMS magnetron (co)sputtering **4:15 pm - 4:30 pm Connor Fields:** Vibronic coupling in N2@C60: A gas phase-solid state hybrid **4:30 pm - 4:45 pm Prof. Xiaoran Liu**: Magnetism and Berry phase manipulation in an emergent structure of perovskite ruthenate by strain engineering
	Queen's Suite - Cockcroft room	**Special Vacuum Chambers and Components - MoPS3C: VST** **Session Chair: Marcelo Juni Ferriera** **4:00 pm - 4.15 pm** Prof. Sefer Avdiaj: **Vacuum System for Measuring** Diffusivity and Permeability: **Case Studies on Zerodur Glass, Kapton®, and PET Plastic** **4:15 pm - 4:30 pm Kristian Kirsch**: Aluminum fiber optical vacuum feedthroughs for harsh environments **4:30 pm - 4:45 pm Dr. Klaus Bergner**: Reliable Aluminum Vacuum Components for Miniaturized Quantum Technology Applications **4:45 pm - 5:00 pm Sam Lodge**: Updates on the factors determining the design of an XHV system for an Ion-trap Quantum Computer

5.30 pm to 7:30 pm	Hall Q	**Poster Session 1 and Drinks Reception -** Topics: Applied Surface Science, Biointerfaces and Materials Engineering, Nanometer Structures, Surface Engineering and Surface Science **Poster Presentations:** **Dr Kirill Bobrov:** Dynamics and long-range ordering of perylene on Ag **Prof. Dr. Jin-Hyo Boo:** 0D quantum dots @ 2D nanosheet muti-dimensional nanostructure tin sulfide as black phosphorus analogue for high performance solar-driven photocatalyst **Mr Jose Brandao-neto:** Radiation Damage in Crystallography - A Tale of 2 Excitation Regimes **Dr. Pavel Calta:** On detailed characterization of annealed PECVD silicon oxynitride thin films: growth of nanocrystals **Mr. Ranferi Cancino:** Effect of Li intercalation on the electronic properties of a SiC bilayer **Mr Jinchuan Chen:** Investigation of the co-adsorption of N-heterocyclic carbenes (NHCs) and ethyl pyruvate on Pt surfaces **Karthikeyan Chockalingam:** A framework for multiscale thermal simulations of batteries **Sukhyun Choi:** High-speed spectroscopic imaging ellipsometer based on monolithic polarizing interferometer: Inspection of the 2D van der waals materials **Mr Hugh Churn:** Lifetime Studies of Caesium Telluride Photocathodes Grown at Daresbury Laboratory **Alejandro Fernández García:** Out-of-plane growth of 2D molybdenum diselenide nanosheets on ultrafast laser-structured substrates **Kevin Jafet Garcia Caraveo:** Adsorption and detection of NH3 on metal functionalized SnC nanosheet: A DFT study **Dr Kerry Hazeldine:** In-situ Near-Ambient Pressure Scanning Tunneling Microscopy Study of MoS2 for Hydrodeoxygenation Applications **Atthar Ivansyah:** Revealing the Role of Magnesium in Mitigating the Properties of BCNO Material for Dye Adsorption, Antibacterial Activity : Experimental and Theoretical Investigation **Mrs. Štěpánka Jansová:** Methodology for procedures for the detection of naturally occurring asbestos in soil sediments **Masanori Kaku:** Hydrophilization of polyethylene terephthalate surface by deep-ultraviolet LED irradiations **Jina Kim:** Active phases of molten alloy catalysts composed of binary or ternary alloys for catalytic methane pyrolysis at high temperatures **Professor Eun Kyu Kim:** Resistive switching behaviours through structural change of CoOx and CuxO films deposited by magnetron sputtering **Fumio Komori:** Fabrication of Clean-Surface Microcrystals by Field Ion Beam for Surface Spectroscopy **Dr. Sam Lambrick:** Advancements in Surface Analysis: 3D ToF-SIMS with Gas Cluster Ion Beams **Masanari Namie:** Atomic interaction of titanium and titanium compounds surfaces with liquid sodium **Jun Nara:** Far- to middle-infrared absorption spectra of multi-layer graphene: DFT study **Mr. Sebastian Negrete Aragon:** Laser generated 2D MoOx functional surface nanostructures **Junoh Kim:** Physically Unclonable Functions Based on Heterostructured 2D Molybdenum Disulfide and Tungsten Disulfide **Daniel Rothhardt:** Mapping Electrostatic Potential on monolayer MnI2 islands **Prof Lidija Siller:** Synthesis and characterization of graphite anode with more stability and wettability by coating alumina layer from aluminium salt **Nick von Jeinsen:** Multi messenger imaging of bacterial biofilm composition and topography **Lukasz Walczak:** Characterization of the biomedical surface by the XPS and HPXPS

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**: PtSe2/metal interfaces: electronic and eletronic transport properties, and the access to the topological gap in PtSe2[VSe] monolayer **11:00 am - 11:15 am Mr Shivam Shukla**: Ag Micromesh/TTO Hybrid Transparent Conductors: Understanding Ag/TTO Electronic Interface **11:15 am - 11:30 am Dr. Masahiro Haze**: Surface conductivity on metal monolayer films formed on Si studied by low temperature scanning tunneling microscopy/potentiometry **11:30 am – 11:45 am Mr. Yuki Higuchi**: Determination of the actual valence band of Bi2Se3 **12:00 pm - 12:15 pm Dr. Wei-Bin Su**: Searching for the evidence of correlated two-electron tunneling in field emission resonance from light emission on Ag surfaces **12:15 pm - 12:30 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 Fe2O3 and SrTiO3 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 HfS2 on Pristine and Functionalized Oxide Interfaces: Model Studies from Surface Science **11:45 am - 12:00 pm Ole Lytken**: Using DFT-predicted O 1s spectra to investigate the chemistry of phenylphosphonic acid on rutile TiO2
	Queen's Suite - Dewer 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 **11:15 am - 11:30 am Prof. Miguel Manso Silván**: A generic green chemistry surface biofunctionalization cascade; an enzyme activated antibacterial coating **11:30 am - 11:45 am Professor Pedro Nascente**: Ti-Nb-Zr Ternary Alloy Coatings Produced by Magnetron Sputtering **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

	Queen's Suite - Thomson Room	**Thin Film Growth Simulation - TuPS1T: TF** **Session Chair: Andrea Picone** **Invited Talk: Rafael Alvarez** **10:30 am – 11:00 am Dr. Rafael Alvarez**: Porous nanocolumnar thin films deposited at glancing angles: fundamentals and applications **11:00 am - 11:15 am Professor Diederik Depla**: How to calculate an oxide sputter yield? **11:15 am - 11:30 am Jyri Kimari**: Machine-learning-augmented simulation of thin metal film growth on weakly-interacting substrates **11:30 am - 11:45 am Karel Mašek**: Cobalt oxide based model system - growth and structure studies **11:45 am - 12:00 pm Roberto Bergamaschini**: Simulations of strained films evolution: extending accessible timescales through Convolutional Neural Networks
	Queen's Suite - Cockcroft Room	**Large Vacuum Systems of Particle Accelerators - TuPS1C: VST** **Session Chair: Keith Middleman** **Invited Talk: Vincent Baglin** **Feature Talk: Matthew Cox** **10:30 am - 11:00 am Vincent Baglin**: The high-luminosity large hadron collider vacuum system **11.00 am - 11:15 am Sunil Patel:** Vacuum Upgrades & Developments at ISIS – The UK Neutron and Muon Research Facility **11:15 am - 11:30 am Hugo Shiers**: Diamond-II Vacuum Instrumentation & Interlock Systems **11:30 am - 11:45 am Mr. Stefan Wilfert**: The vacuum system of SIS100 at FAIR – First operating experience gained during the string test **11:45 am - 12:00 pm Thanapong Phimsen**: Progress in Vacuum System Design for Thailand's New Light Source **12:00 pm - 12:20 pm Dr Matthew Cox**: The Diamond-II Vacuum System
	Queen's Suite - Walton room	**MS-1: Recent Developments in Surface Microscopy - TuPS1W: MS** **Session Chair: Dr. Matthew Bergin** **Invited Speaker: Andrew Pollard** **10:30 am - 11:00 am Dr Andrew Pollard**: The importance, challenges and solutions for measuring 2D materials **11:00 am - 11:15 am Prof Paul Dastoor:** Neutral Atom Microscopy: Science and Applications **11:15 am - 11:30 am Dr. Sam Lambrick**: Monolayer exfoliated MoS2 studied with Atom micro diffraction **11:30 am - 11:45 am Sabrina Daniela Eder**: Reflection imaging with a helium zone plate microscope **11:45 am - 12:00 pm Min Lin**: DFT-Based Simulation of Helium Interaction Potentials with MoS2 Surfaces for Scanning Helium Microscopy Applications **12:00 pm - 12:15 pm Dr Matthew Bergin**: Studying 2D materials with spatially resolved atom diffraction in scanning helium microscopy
12:30 pm to 2:00 pm	Hall Q	**Lunch**
2:00 pm to 5:00 pm	Theatre, Hall Q	**VTC2 - Vacuum in Practice - Atmosphere to High Vacuum** **Trainer: Richard Pilkington**

2:00 pm to 3:30 pm	Auditorium	**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
	King's Suite	**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
	Queen's Suite - Dewar room	**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?
	Queen's Suite - Thomson room	**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
	Queen's Suite - Cockcroft room	**Non-evaporable getter coatings - TuPS2C: VST** **Session Chair: Oleg Malyshev** **Invited Speaker: Reza Valizadeh** **2:00 pm - 2:30 pm Reza Vakizadeh**: NEG as an 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
3.30 pm to 4:00 pm	Hall Q	**Afternoon Break**

4:00 pm to 5:30 pm	Auditorium	**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 microlitography **5:15 pm - 5:30 pm Prof Masashi Nakamura**: Interfacial structure on the Pt electrode modeled under ultrahigh vacuum conditions
	King's Suite	**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 Yi-Ying Sung:** Identification of defects on CVD-grown hydrogen-terminated diamond using scanning tunnelling microscopy **4:45 pm - 5:00 pm Taiga Hirota:** Electronic structure of fullerene derivative thin films with gold doping **5:00 pm - 5:20 pm Professor Andrew Evans:** The oxidation of diamond surfaces at near-ambient pressure
	Queen's Suite - Dewar room	**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
	Queen's Suite - Thomson room	**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 Dunal**: Influence of contamination on MoS2/Au interface
	Queen's Suite - Cockcroft room	**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

	Queen's Suite - Walton room	**Plasma Science - TuPS3W: PS** **Session Chair: Mark J. Kushner** **Invited Talk: Sedina Tsikata** **4:00 pm – 4:30 Professor Sedina Tsikata**: Understanding complex features of partially-magnetized deposition plasmas **4:30 pm - 4:45 pm Régis Bisson**: Simulating plasma-surface interactions with ion and molecular beams experiments: interest for nuclear fusion **4:45 pm - 5:00 pm Andrew Gibson**: Measurement and modelling of low-pressure inductively coupled plasmas in nitrogen/oxygen mixtures **5:00 pm - 5:15 pm Martin Rudolph**: Excitation, suppression and generation of spokes in direct current magnetron sputtering discharges
5:30 pm - 7:30 pm	Theatre, Hall Q	**VTC5 - Design & Fabrication of Vacuum Chambers** **Trainer: Sophia Plomer-Thies, Pfeiffer Vacuum**

5.30 pm to 7:30 pm	Hall Q	**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 - S**tructural 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

Wednesday 19 June 2024

Time	Room	Programme
9:00 am to 10:00 am	Auditorium	**Plenary Talk: Prof. Alfred Ludwig** **Session Chair: Rafael Alvarez** Combinatorial synthesis and high-throughput characterisation of thin film materials libraries for the accelerated discovery of materials
9:00 am to 12:00 am	Theatre, Hall Q	VTC7 - Practical Training on Pump Maintenance and Troubleshooting Training: Adam Ross and Raj Das, Leybold Vacuum
10.00 am to 10:30 am	Hall Q	**Morning Break**
10:30 am to 12:35 pm	Auditorium	**Plasmonics and Excited States at Surfaces - WePS1A: ASS+SS+SE** **Invited Talk: Anna Rosławska** **Feature Talk: Marcin Lapinski** **10:30 am – 11:00 am Dr. Anna Roslawska**: Light-matter interaction probed at the atomic scale **11:00 am - 11:15 am Alexander Spears**: Molecular dynamics investigation of the role of lattice heating in laser-driven hydrogen evolution at copper surfaces **11:15 am - 11:30 am Prof. Valentina De Renzi**: HREELS investigation of phonon and plasmon dispersion across the TiSe2 CDW phase transition **11:30 am – 11:45 am Vibhuti Rai**: From Vibrationally resolved to time-resolved spectroscopy with scanning tunnelling microscopy **11:45 am – 12:00 pm Kai Huang**: Adsorption, growth and decay dynamics of silver on Si **12:00 pm - 12:20 pm Mr Marcin Lapinski**: Plasmonic nanoalloys. Manufacturing with properties tuned by the assistance of machine learning method
	King's Suite	**Carbon Materials 2 - WePS1K: ASS+SS+SE** **Session Chair: Andrew Evans** **Feature Talk: Zamin Mamiyev** **10:30 am – 10:45 am Jack Bradley**: Optimisation of graphene oxide synthesis and accurate determination of the carbon/oxygen ratio **10:45 am - 11:00 am Alice Cartoceti**: Evolution of atomic-scale structure and vibrational properties of Graphdiyne nanoribbons: an insight into novel 2D carbon allotropes **11:00 am - 11:15 am Dr. Andrea Tonelli**: Tuning the electronic structure of nanoporous graphene by chemical adsorption **11:15 am - 11:30 am Connor Fields**: Timing the Escape of a Caged Electron **11:30 am – 11:45 pm Arturs Medvids**: Photoluminescence of Diamond-Like Carbon Quantum Cones with Dispersive Spectrum Distributed in Time: Nano Monochromator **11:45 am - 12:00 pm Marco Menegazzo**: Atomic force microscopy and Raman spectroscopy combined to in-situ and real time investigation of graphite anion intercalation **12:00 pm - 12:15 pm Hualin Yang**: Atomically dispersed cobalt atoms embedded in a bilayer of C60 **12:15 pm – 12:35 pm Dr Zamin Mamiyev**: Confined epitaxy of Sn-induced structures beneath epitaxial graphene hosting correlated electronic properties
	Queen's Suite - Dewer Room	**Biointerfaces/Biophysics/Biosensers - WePS1D: BIME** **Session Chair: Markus Ronke** **Invited Talks: Sebastiaan van Nuffel and Pedro Alpuim** **10:30 am – 11:00 am Dr. Sebastiaan Van Nuffel**: Investigating Biointerfaces using Integrative ToF-SIMS Imaging **11:00 am - 11:15 am Maria Caruso**: Durable Slippery Liquid Porous Surfaces for drug reduction application **11:15 am - 11:30 am Lukas Hoermann**: Optimization of incommensurate organic/inorganic interface structures to study superlubricity

		11:30 am - 11:45 am Dr Festus Ben: Investigating the Tribological Behavior of Bioinspired Surfaces in Agro-waste and Alumina Reinforced AA6063 Matrix Hybrid Composites **11:45 am - 12:15 pm Mr Pedro Alpuim**: Advantages and challenges of graphene transistors for biosensing
	Queen's Suite - Thomson Room	**Advanced Thin Film Fabrication - WePS1T: TF** **Session Chairs: Diederik Depla and Rafael Alvarez** **Invited Talk: Maarit Karppinen** **10:30 am – 11:00 am Maarit Karppinen**: Novel inorganic-organic materials through ALD/MLD as enablers of next-generation energy and nanotechnology applications **11:00 am - 11:15 am Spyridon Korkos**: Structure formation in miscible and immiscible thin binary alloy films synthesized by temporally modulated vapor fluxes **11:15 am - 11:30 am Mr. Zdenek Jansa**: Investigation of the effect of fabrication of SrTiO3 doped thin film samples on a silicon substrate and the experimental techniques used on surface cracking and destruction **11:30 am - 11:45 am Mr Mayank Dotiyal**: Designing VO2 films with variable transition temperatures: effect of chemical strain **11:45 am - 12:00 pm Dr James Dutson**: Reactive remote plasma sputtering of TiOx thin films and controlled growth **12:00 pm - 12:15 pm Dr. Jiri Olejnicek**: Reactive sputtering of undoped ZnO films with ultrafast photoluminescence **12:15 pm - 12:30 pm Professor Andrea Picone**: Ultrathin oxide/graphene heterostructures
	Queen's Suite - Cockcroft Room	**MS-6: RGA User Meeting 1 - WePS1C: VST / MS** **Session Chairs: Joe Herbert and Klaus Beregner** **Feature Talks: Steve Taylor and Matthias Bernien** **10:30 am – 10:40 am Joe Herbert**: Opening MS-6. Harry Leck Medal Award **10:40 am - 11:00 am Professor Stephen Taylor:** Residual Gas Analysis using a membrane inlet **11:00 am - 11:15 am René Koops**: Quadrupole Residual Gas Analysis developments at TNO **11:15 am - 11:30 am Mr Cliff Harris**: **RGA vs Leak Detector –** When to use an RGA? **11:30 am – 11:45 am Laurent Ducimetiere**: Carrier gas in Helium leak detection – application to conductance-limited devices **11:45 am - 12:00 pm Hugo Shiers:** Residual gas analysers (RGAs) on the Diamond Light source **12:00 pm - 12:20 pm Matthias Bernien:** Traceable partial pressure and leak rate measurements applying ISO/TS 20175
	Queen's Suite - Walton room	**MS-3: On-Surface Synthesis of 1D and 2D Functional Graphitic Materials - WePS1W: MS** **Session Chairs: Alex Saywell and David A. Duncan** **Invited Talk: Markus Lackinger** **10:30 am - 11:00 am Dr. Markus Lackinger**: On the Utility of Spectroscopy for On-Surface Synthesis **11:00 am - 11:15 am Dr Samuel Jarvis:** Extrinsic activation of 2D polymerization on inert surfaces using atomic clusters **11:15 am - 11:30 am Dr. Ana Barragán**: Generating Antiaromaticity: Thermally-selective Skeletal Rearrangements at Interfaces **11:30 am - 11:45 am Mr Matthew Stoodley**: Imaging and spectroscopic study of topological defects in graphene grown by bottom up synthesis **11:45 am - 12:00 pm Dr David Duncan**: Silicene's pervasive surface alloy on Ag **12:00 pm - 12:15 pm Benedict Saunders**: Exploration of Defect Superstructures in Graphene **12:15 pm - 12:30 pm Dr Alex Saywell**: On-surface synthesis of porphyrin-graphene nanoribbons

12:30 pm to 2:00 pm	Hall Q	Lunch
2:00 pm to 5:00 pm	Theatre, Hall Q	**VTC8 - An Introduction to Cryopumping** **Trainer: Jinane Haddad, Leybold Vacuum**
2:00 pm to 3:30 pm	Auditorium	**Catalysis and Electrocatalysis including Single Atom and In Operando Studies 1 - WePS2A: ASS+SS+SE** **Session Chair: Gareth Parkinson** **Feature Talk: Jan Knudsen** **2:00 pm - 2:15 pm Dr. Moritz Eder**: Multi-technique characterization of rhodium single atoms on TiO2 **2:15 pm - 2:30 pm Fulden Eratam**: A structural study of CO ligation to Cu adsorbed on Fe3O4 **2:30 pm - 2:45 pm Roser Fernandez-Climent**: Surfase reconstrucion of Cu2-xS electrocatalyst under bias **2:45 pm - 3:00 pm Shiva Oveysipoor**: Iron-Induced Surface Transformations of Ceria: Insights from FeOx/CeO2 and Au/FeOx/CeO2 Systems **3:00 pm - 3:20 pm Jan Knudsen**: Temperature-dependent selectivity and detection of hidden carbon deposition in methane oxidation
	King's Suite	**2D Materials and Van der Waals heterostructures 1 - WePS2K: ASS+SS+SE** **Session Chair: Norbert Koch** **Invited Talk: Maciej Rogala** **2:00 pm - 2:30 pm Dr. Maciej Rogala:** Electrical properties of crystalline MoO3 monolayers **2:30 pm - 2:45 pm Amina Kimouche:** Van der Waals epitaxy of a magnetic transition metal dihalide **2:45 pm - 3:00 pm Dr Kabalan Lara**: Computational prediction of interfaces between transition metal surfaces and two-dimensional MoS2 **3:00 pm - 3:15 pm Jiandong Guo**: Lattice dynamics of low-dimensional systems investigated with surface spectroscopy **3:15 pm - 3:30 pm Mrs Klaudia Toczek**: Heterostructures based on 2D-Bi and van der Waals layers as an effective method to protect 2D materials against oxidative degradation
	Queen's Suite - Dewar room	**MS-5: Electrochemical MEMs Sensing for Environmental and Biological Monitoring - WePS2D: MS** **Session Chairs: Prof. Haitao Ye and Dr. Kai Yang** **Invited Talk: Richard Fu** **Feature Talk: Makoto Kasu** **2:00 pm - 2:30 pm Prof Richard Fu**: Smart thin film materials for MEMS and microsystem applications **2:45 pm - 3:00 pm Professor Haitao Ye**: Impedance spectroscopy studies on diamond-based nanomaterials and nanostructures **3:00 pm - 3:20 pm Professor Makoto Kasu**: Recent Progress of Diamond Semiconductors: Two-Inch Diamond Wafer and High-Power Diamond MOSFETs
	Queen's Suite - Cockcroft room	**MS-6: RGA User Meeting 2 - WePS2C: VST / MS** **Session Chairs: Steve Taylor and Raj Das** **Invited Talk: Farnoush Salarzaei** **Feature Talk: Eleni Marshall** **2:00 pm - 2:30 pm Dr Farnoush Salarzaei**: Remote RGA Operation up to 100m, with a novel Radiation Resistant Extender Cable **2:30 pm - 2:45 pm Mareen Czech**: Correlation of mass spectrometry and pressure in ultra-high vacuum systems **2:45 pm - 3:00 pm Florian Heck**: Unlocking the Mysteries of Process Gases: Insights from Mass Spectrometry **3:00 pm - 3:20 pm Miss Eleni Marshall**: Comparison of Residual gas analyser calibration coefficients across in high- to extreme high- vacuum

	Queen's Suite - Walton room	**Plasma Science 2 - WePS2W: PS** **Session Chair: Martin Rudolph** **Invited Talks: Julian Held and Zdeněk Hubička** **2:00 pm - 2:30 pm Julian Held**: Ionization of sputtered material in high power impulse magnetron sputtering plasmas **2:30 pm - 2:45 pm Matjaž Panjan**: Dynamics and self-organization of HiPIMS plasma during individual pulses **2:45 pm - 3:15 pm Dr Zdeněk Hubička**: Plasma diagnostics in various configurations of reactive pulse magnetron sputtering systems used for thin film deposition of semiconductors **3:15 pm - 3:30 pm Mr Angus McCarter**: RFEAs for Plasma Assisted Thin Film Deposition Tools
3.30 pm to 4:00 pm	**Hall Q**	**Afternoon Break**
4:00 pm to 5:30 pm	**Auditorium**	**Catalysis and Electrocatalysis including Single Atom and In Operando Studies 2 - WePS3A: ASS+SS+SE** **Session Chair: Jan Knudsen** **Feature Talk: Gareth Parkinson** **4:00 pm - 4:15 pm Dr Juliana Morbec**: Interaction between pentacene molecules and monolayer transition metal dichalcogenides **4:15 pm - 4:30 pm Florian Kraushofer**: Dynamics of metal particles on rutile TiO_2 under near-ambient pressures of O_2, H_2, and CO_2 **4:30 pm – 4:45 pm Harry Taylor**: Underpotential deposition of nickel oxyhydroxide nanoislands for better understanding of the alkaline oxygen evolution reaction **4:45 pm - 5:00 pm Fahdzi Muttaqien**: Direction Dependence of CO2 Incidence on Cu Lattice Vector in the CO2 Hydrogenation Reaction **5:00 pm - 5:20 pm Gareth Parkinson**: How the 2nd coordination sphere affects the reactivity of "single-atom" catalysts
	King's Suite	**Water and Environmental Surfaces - WePS3K: ASS+SS+SE** **Session Chair: Martin McCoustra** **Invited Talk: Jenny Noble** **4:00 pm - 4:30 pm Jenny Noble:** Amorphous solid water: from the laboratory to the interstellar medium **4:30 pm - 4:45 pm Anna Cecilie Aasland:** Initial Stages of Water Absorption on CeO2 Surfaces at Very Low Temperatures for Understanding Anti-Icing Coatings **4:45 pm - 5:00 pm Mateusz Suchodol:** Probing the mechanism of facile water dissociation on oxygen covered Cu by Reflection Absorption Infrared Spectroscopy (RAIRS)
	Queen's Suite - Dewar room	**ECR-2 - WePS3D: ECR** **Invited Talks: Rob Short and Oleg B. Malyshev** **4:00 pm - 4:30 pm Professor Robert Short**: Plasma Medicine: An Exciting New Medical Technology. The good, bad and ugly **4:30 pm - 5:30 pm Dr. Oleg Malyshev**: How to get published
	Queen's Suite - Thomson room	**Advanced Thin Film Characterisation - WePS3T: TF** **Session Chair: Alfred Ludwig** **Feature Talk: Paul Dastoor** **4:00 pm - 4:15 pm Dr Wojciech Pawlak**: Tetrafluoromethane influence on carbon-based nanocomposite nc-CrC/a-C thin films **4:15 pm - 4:30 pm Dr Rosemary Jones:** The Impact of Substrate on Hafnium Oxide ALD from its Amido Precursor - An APXPS Study **4:30pm - 4:45 pm Eleanor Ender**: Unravelling Fundamental Limits: Isotopic Labelling and Correlative NanoSIMS/XPS Analysis of Nickel Catalysts in Alkaline Electrolysers **4:45 pm - 5:00 pm Błażej Gołyszny**: LEEM and PEEM investigation of structural and electronic properties of F16CuPc thin films on Ag surfaces **5:00 pm - 5:20 pm Prof Paul Dastoor**: Ångström-Scale Topography in Neutral Helium Microscopy: Evaluating Thin-Film Coatings over Large Areas

	Queen's Suite - Cockcroft room	**MS-6: RGA User Meeting 3 - WePS3C: VST / MS** **Session Chairs: Sunil Patel and Farnoush Salarzaei** **Feature Talk: Klaus Brergner** **4:00 pm – 4:15 Freek Molkenboer**: A systematic approach for contamination control **4:15 pm - 4:30 pm Martin Wüest**: Monitoring Chamber Health with an Optical Plasma Gauge **4:30 pm - 4:45 pm Kristian Kirsch**: Enabling vacuum process monitoring with time-of-flight spectroscopy **4:45 pm - 5:00 pm Nick von Jeinsen**: Advancements in ultra-high sensitivity mass spectrometers for atom scattering **5:00 pm - 5:20 pm Dr. Klaus Bergner**: Mastering Clean Vacuum: Overcome Contamination for science and industrial applications
	Queen's Suite - Walton room	**Electronic Materials, Energy Reduction and Carbon Reduction - WePS3W: EM** **Invited Talk: Takao Katsura** **4:00 pm – 4:30 Takao Katsura**: Development of new structured-core transparent vacuum insulation panels contributing to insulation retrofit of existing buildings **4:30 pm - 4:45 pm Mr Shivam Shukla**: Defect-induced Anatase Phase Stability in TiO2-based Thin Films: Role of Tantalum and Oxygen **4:45 pm - 5:00 pm Mr. Michal Kaufman**: Smart VO2-based coatings for energy-saving windows **5:00 pm - 5:15 pm Prof. Dr. Swetlana Schauermann**: Low-temperature heterogeneous hydrogenation of carbonyl compounds: molecular systems for reversible hydrogen storage

5.30 pm to 7:30 pm	Hall Q	**Poster Session 3 and Drinks Reception - Topic: Topics: Plasma Science, Thin Films Deposition, Characterisation and Applications, Vacuum Science and Technology and Applications** **Poster Presentations:** **Elisabeth Bancroft** - On-surface growth of 1D molecular wires characterised in ambient conditions **Christopher Benjamin** - Surface Characterisation of Thin Film V3Si deposition using HiPIMS **Christopher Benjamin** - Novel photocathode production method for CsTe Photocathodes via Cs Ion beam sputtering **Charlotte Marie Benning** - Distributed Pumping and Seamless Flanges for the 120 km UHV Tubes of the Einstein Telescope **César Caballero Pérez** - Status Vacuum System Design of IFMIF DONES **Alice Cartoceti** - Unveiling substrate role in 2D MoS2 growth: Pulsed Laser Deposition on non-metallic substrates for high-end applications **James Conlon** - Substrate preparation for SRF thin films: Comparisons of roughness properties **Mr Mayank Dotiyal** - Designing stable and reliable vanadium oxide thin films Eva Horynova - Preparation of nickel oxide by pulsed laser deposition and its utilisation as hole transport layers for solar cells **Kim Jin Gyu** - Effect of Ozonized Water Treatment on Aluminum 6063 **Dr. Neeraj Kurichiyanil** - Pillow seal vacuum joints for the target area of the Super-FRS at FAIR **Dr. Neeraj Kurichiyanil** - Special and standard vacuum solutions at the Super-FRS at FAIR **Marek Kuzmiak** - Growth of Si-Ag-Tl thin films for self-assembly of organic molecules **Rebekah Luff** - Vacuum performance analysis using new cleaning solutions (on an UHV outgassing rig) **Arturs Medvids** - Improvement Mechanical Properties of Nb on Cu Structure for RF Cavity by Laser Radiation: Formation of Soft Cu Buffer layer **Matthew Naylor** - Regulating the properties of Mo thin films to form an efficient back contact for CZTSSe solar cells **Jun-Ik Park** - Impact of Conduit Geometry on the Pumping Speed Characteristics of Dry Vacuum Pumps **Mr Oliver Poynton** - Development of SLA 3D printed volumes for leak testing of LHC Hi-Lumi cryomodules at STFC **Aleksandar Radic** - On the application of components manufactured with stereolithographic 3D printing in high vacuum systems **Jordan Rigby** - Analysis of Additive Manufactured Samples with Deposited Niobium Thin Films for Use on Particle Accelerators **Naoko Sano** - 3D MS imaging using Cluster SIMS (Ar, CO2, H2O, C60) for various types of analytes: How to select an efficient sputter beam for a specific material? **Mr Daniel Seal** - Optimisation Of Niobium Thin Film Depositions For Superconducting Radiofrequency Accelerating Cavities **Mr Daniel Seal** - Cryogenic Facilities For Superconducting Thin Film Characterisation **Prabhu Selvaraj** - A new lead-free low-temperature hermetic edge seal for the fabrication of vacuum glazing **Hyungjoo Son** - Design of the Vacuum System for the High-Energy Beam Transport Section of RAON **Sihui Wang** - Recent research on NEG coatings for HALF vacuum systems **Charlie Wells** - Effect of surface roughness and molecular templates on thin film thermoelectric performance **Dr Stuart Wilde** - Technical details of the STFC nitrogen purge system required for PIP II HB650 Cryomodule String Assembly **Dawei Zhao** - Improving operational stability of thin film perovskite solar cells in extreme humidity and thermal environments using ultra-thin hydrophilic polymer films

7:30 pm to 10:00 pm		Conference Dinner

Thursday 20 June 2024

Time	Room	Programme
8:30 am to 10:30 am	Auditorium	**Plenary Talks: Prof. Ian Gilmore (EPS Invited Lecture) and Prof. Zhaofeng Chen** **Session Chairs: Michael Bryant and Takao Katsura** **8:30 am – 9:30 am Professor Ian Gilmore: OrbiSIMS –** high resolution mass spectrometry imaging with simultaneous chemical identification and localisation with high confidence **9:30 am – 10:30 am Zhaofeng Chen:** Vacuum insulation panel and its application in the field of building
9:00 am to 11:30 am	Theatre, Hall Q	VTC6 - Introduction to Mass Spectrometry and Residual Gas Analysis (RGA) Trainer: Graham Cooke
10.30 am to 11:00 am	Hall Q	Morning Break
11:00 am to 1:00 pm	Auditorium	**Catalysis and Electrocatalysis Including Single Atom and In Operando Studies 3 - ThPSA: ASS+SS+SE** **Session Chair: László Óvári** **Invited Talk: Charles Syke** **11.00 am – 11:30 am Charles Sykes**: Single-atom alloy catalysts: born in a vacuum, tested in reactors, and understood in silico **11:30 am - 11:45 am Dr. Norton West**: Reducing Iridium loading within acidic oxygen evolution catalysts for Green Hydrogen Production **11:45 am - 12:00 pm Safouan Ziat**: Selective hydrogenation of butadiene by single metallic atoms anchored on graphene-based catalysts **12:00 pm – 12:15 pm Dr Moyahabo Hellen Chuma**: Computational Modelling of CO2 Reduction to Ethylene over Doped Copper Catalysts **12:15 am – 12:30 pm Mr Aji Alexander**: Polarity compensated Perovskite surfaces as a support for single-atom catalysis **12:30 pm - 12:45 pm Stefania Baronio**: Dioxygen activation at a biomimetic 2D single metal atom catalyst beyond ultra-high vacuum **12:45 pm - 1:00 pm Dr. Katharina Doblhoff-Dier**: Barriers for molecular dissociation: Can correlated electronic structure methods help?
	King's Suite	**2D Materials and Van der Waals Heterostructures 2 and Ferroelectric Behaviour - ThPSK: ASS+SS+SE** **Session Chair: Pawel Kowalczyk** **Invited Talk: Norbert Koch** **11:00 am - 11:30 am Norbert Koch**: Energy level alignment and fundamental processes at interfaces between monolayer transition metal dichalcogenides and organic semiconductors **11.30 am - 11:45 am Dr Li Ma**: Surface reactivity of Weyl semimetal Co3Sn2S2 from vacuum to water splitting conditions **11:45 am - 12:00 pm Dr David Ward**: Seeing hard and soft materials with atoms **12:00 pm - 12:15 pm Philipp Seiler**: Probing molecular diffusion on 2D materials with neutral matter **12:15 pm – 12:30 pm Mr Huanyu Zhou**: Ab initio Simulation of Molecular Crystal Regrowth from Solution **12:30 pm - 12:45 pm Dominik Wrana**: Ferroelectricity on as-cleaved perovskite surfaces **12:45 pm - 1:00 pm Yasuo Cho**: Heat Assisted Ferroelectric Reading for High Speed SNDM Ferroelectric Probe Data Storage

	Queen's Suite - Dewer Room	**Spectroscopy and Microscopy of Nanostructures Modelling Nanostructure Properties - ThPSD: NS** **Session Chair: Jascha Repp** **Invited Talk: Grażyna Antczak** **11:00 am – 11:30 am Grażyna Antczak**: Identification of chirality of the organic molecular domains in the reciprocal space **11:30 am - 11:45 am Paul Philip Schmidt**: Diffusion studies of Pb on Si using SFM and KPFM **11:45 am - 12:00 am Philip Moriarty**: Directing Jahn-Teller Dynamics via Submolecular Resolution Tunneling Spectroscopy **12:00 pm - 12:15 pm Dr Michael Hunt**: Langmuir-Hinshelwood Kinetics in Atmospheric Pressure CVD Growth of Few-Layer MoS2 on Silicon **12:15 pm - 12:30 pm Sparsh Tyagi**: Identification of Metal Centers in a Bimetallic Ni/Co-HITP Metal-Organic Framework
	Queen's Suite - Thomson Room	**MS-4: Vacuum Insulation Energy Technologies for Energy Savings - ThPST: MS (EM & VST)** **Session Chair: Saim Memon** **Feature Talks: Takao Katsura and Prabhu Selvara** **11:30 am – 12:00 pm Takao Katsura**: Double envelope vacuum insulation panel to contribute the long-term thermal insulation performance **12:00 pm - 12:20 pm Prabhu Selvaraj**: A new lead-free low-temperature hermetic edge seal for the fabrication of vacuum glazing **12:20 pm - 12:35 pm Saim Memon**: Vacuum Insulated Energy Saving Materials for Net Zero Energy Buildings
	Queen's Suite - Cockcroft Room	**Vacuum Metrology - ThPSC: VST** **Session Chairs: Martin Wuest, Carlo Scarcia** **Invited Talk: Matthias Bernien** **Feature Talk: Tom Rubin** **11:00 am – 11:30 am Matthias Bernien**: Advances in traceable vacuum and outgassing rate measurements **11:30 am - 11:45 am Dr. Jay Hendricks:** The NIST on a Chip Program, Quantum Based Sensors for the Pressure, Vacuum, and More! **11:45 am - 12:00 pm Martyn Green**: Comparison of SRG transducer technology to Ion gauge technology in process applications **12:00 pm - 12:20 pm Dr. Tom Rubin**: Quantum-based realizations of the pascal in Europe
11:45 am to 1:30 pm	**Theatre, Hall Q**	**VTC6 - Demonstration TOF Spectrometry** Trainers: Sebastian Hüttl, Vanessa Kirchhoff, Tobias Fischer, VACOM
1:00 pm to 2:00 pm	**Hall Q**	**Lunch**
2.00 pm to 6:00 pm	**Hall Q**	**Excursions/Free Time**

Friday 21 June 2024

Time	Room	Programme
9:00 am to 10:00 am	Auditorium	**Plenary Talk: Prof. Bjork Hammer** Surface structure from machine learning
10.00 am to 10:30 am	Hall Q	**Morning Break**
10:30 am to 12:00 pm	Auditorium	**Self-Assembly, Characterisation and Reactivity of 2D Structures of Molecules at Surfaces - FrPSA: ASS+SS+SE** **Session Chair: Philipp Seiler** **Invited Talk: Letizia Savio** **10:30 am – 11:00 am Dr Letizia Savio**: Pd-cyclometallated complexes at Ag: from self-assembly to the synthesis of new compounds **11:15 am - 11:30 am Dr Aisha Ahsan**: On-surface induced fitting and mobility of conformationally flexible molecules inside nano confinements **11:30 am - 11:45 am Mattia Bassotti**: Phosphorus buffer layer for electronic decoupling of Zinc-Tetraphenylporphyrin from a metal substrate: a combined spectroscopy and microscopy study **11:45 am – 12:00 pm Miki Fukushima**: Molecular Ordering on Surfaces at the Limit of Vanishing Coupling Strengths: TMPH/Cu
	King's Suite	**Catalysis and Electrocatalysis Including Single Atom and In Operando Studies 4 - FrPSK: ASS+SS+SE** **Session Chair: Carles Sykes** **10:30 am - 10:45 am Mr. Francisco Javier Fernández Alonso**: Exploring the Interplay of Ti–Sn Co-Doping in Photoelectrochemical Water Splitting of Hematite Nanowires **10:45 am - 11:00 am Zhongqiu Lin**: Positive and Negative Impacts of Hydrogen Bonds on Photocatalytic Hydrogen Evolution **11:00 am - 11:15 am Jesús Redondo**: Investigating the electrooxidation of Au in basic and acidic media **11:15 am - 11:30 pm Youssef Guermassi**: The relevance of catalytic silicate and carbon dust surface reactions in the inner solar nebula
	Queen's Suite - Thomson Room	**Electronic Materials, Energy Reduction and Carbon Reduction 2 - FrPST: EM** **Feature Talk: Hirofumi Yanagisawa** **10:30 am - 10:45 am Adrianna Rejmer**: Insight into the diffusion of electrically active and inactive impurities using Secondary Ion Mass Spectrometry **10:45 am - 11:00 am Takuya Matsumoto**: Time-Resolved Charge Observation of Photovoltaic Organic Thin Films by Tip-Synchronized Electrostatic Force Microscopy **11:00 am - 11:20 am Hirofumi Yanagisawa**: Integration of ultrafast switches into a single-molecule vacuum electronics
	Queen's Suite - Cockcroft Room	**Vacuum pumps - FrPSC: VST** **Session Chair: Matthew Cox** **Feature Talk: Junichiro Kamiya** **10:30 am – 10:45 am Laurent Ducimetiere**: Energy-efficient vacuum applications **10:45 am - 11:00 am Qingzhou Yu:** Research and development of high-performance screw vacuum pump rotor **11:00 am - 11:15 am Dr. Zhaoxi Chen**: R&D of the EAST plug-in cryopump for long-pulse and high-performance plasma operation **11:15 am - 11:30 am Mr Michael Galtry**: Performance modelling of a multistage roots vacuum pump **11:30 am - 11:50 am Junichiro Kamiya**: High performance turbomolecular pump with titanium alloy rotor blades

12:00 pm to 1:00 pm	Auditorium	**Plenary Talk: Prof. Jascha Repp** Accessing non-equilibrium at the intrinsic scales of molecules
1:00 pm to 1:30 pm	Auditorium	**Awards and Close**

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