

Monday 12 July 2021 (all timings are British Summer Time)

11:00	Welcome			
Session chair	Serena Cussen			
11:15	PL01	Defect free and water based 2D material inks: from printed electronics to biomedical applications Gibson-Fawcett award winner Cinzia Casiraghi		
12:00	Break Facilitated networking			
	Materials for a changing future	Materials for design and development	Materials for energy	Materials for life
Session chair	Siddharth Patwardhan	Susan Quinn	David Scanlon	Rachel K. O'Reilly
12:30	K01 Hot proteins on cool crystals: from crystal growth modulation by ice-binding proteins to bioinspired functional materials Ilja Voets Eindhoven University, Netherlands	K02 Biomolecule interactions with nanomaterials in the environment John Jeyes award winner Iseult Lynch University of Birmingham, UK	K03 Engineering Electrocatalysts for CO2 Electrolyzers Feng Jiao University of Delaware, USA	K04 Bio-inspired and Sustainable Design: Towards Functional Materials LaShanda Korley University of Delaware, USA
12:55	O01 Understanding the Role of Parallel Pathways via In Situ Switching of Quantum Interference in Molecular Tunneling Junctions Saurabh Soni University Of Groningen, Netherlands	O05 Antibacterial and Antiviral Chitosan-Based Materials: Chemistry and Biological Activity toward Tackling COVID-19-like Pandemics Zamani Cele Council for Scientific and Industrial Research (CSIR), South Africa	O9 Theory-led design of novel skutterudite thermoelectrics Jonathan Skelton University of Manchester, UK	O13 Glycan-Nanoparticle as Multifunctional Mechanistic Probes for Glycobiology and Virus Infection Dejian Zhou University of Leeds, UK
13:10	O02 Artificial Synthesis of Conjugated Microporous Polymers: How Solvent Choice Influences Porosity Catherine Mollart Lancaster University, UK	O06 3D printing of photocurable CNTs composites - from the development of initiating system to the production of nanocomposites in bulk and via vat 3D printing Wiktoria Tomal Politechnika Krakowska, Poland	O10 Development of new solid and liquid electrolytes by tailoring the ionic and molecular structure Jenny Pringle Deakin University, Australia	O14 Liquid Phase Electron Microscopy as an Investigative Tool to Probe Pharmaceutical Crystallisation Jennifer Cookman University of Limerick, Ireland
13:25	O03 Programmed Multiresponsive Hydrogel Assemblies with Light-Tunable Mechanical Properties, Actuation and Fluorescence Brian Saunders University of Manchester, UK	O07 Inspired by Nature: Controlled Condensation of Nucleobases to Functional Materials Janina Kossmann Max Planck Institute of Colloids and Interfaces, Germany	O11 Non-radiative carrier trapping processes at the iodine interstitial in perovskite solar cells Lucy Whalley Northumbria University, UK	O15 Thermal detection of cardiac biomarkers using a molecularly imprinted polymer nanoparticle-based sensor platform Jake McClements Newcastle University, UK
13:40	O04 Photo-switch Properties of Stilbene and Azobenzene Based Pt(II) Alkynyl complexes Rayya Al Balushi A'Sharqiyah University, Oman	O08 Lignin nanoparticles for sustainable processes and functional materials Mika Sipponen Stockholm University, Sweden	O12 Aliovalent substitutions in the sodium superionic conductors Na ₁₁ xSn ₂ P _{1-x} MxS ₁₂ with M = Sn, Ge Marvin Kraft Department of Inorganic and Analytical Chemistry, University of Münster, Germany	O16 Near-infrared nanotube optical sensors for improved neurochemical sensing Alice Gillen Lawrence Livermore National Laboratory, USA
13:55	Break Ask the plenary speaker: Goki Eda, Taeghwan Hyeon and Kristina Edström Chairs: Cameron Alexander and Rachel Evans			
Session chair	Cinzia Casiraghi	Ben Pilgrim	Mauro Pasta	Yurii Gun'ko
14:30		K06 Whither hybrid halide perovskites? Beyond the main group, and beyond optoelectronics Ram Seshadri University of California, USA		
14:55	K05 Reduction of Graphene Oxide: Product and By-product Nirmalya Ballav IISER Pune, India	K07 21st Century Alchemy: making Coinage Metals Look Like Ir and Pt. Stephanie L Kwolek award winner Mark Thompson University of Southern California, USA	K08 Antimony selenide thin film solar cells: current status and challenges Jon Major University of Liverpool, UK	K09 I'm an Influencer- How saRNA Delivery Vehicle Affects Protein Expression and Vaccine Immunogenicity Anna Blakney University of British Columbia, Canada
15:20	O17 Adsorption of Eu ³⁺ in high-charge micas: Dual functionality as radioactive waste encapsulation and in-situ luminescent sensor Rosa Martín Rodríguez University of Cantabria, Spain	O21 Photocatalytic ZnO Molecular Foams for the degradation of micropollutants. Zachary Warren University of Bath, UK	O25 Development of lead-free metal halide perovskites for photocatalysis Lorenzo Malavasi University of Pavia, Italy	O29 Multivalent Affinity Profiling: Flu Virus Detection on Surface Gradient Sensors Jurriaan Huskens University of Twente, Netherlands

15:35	O18 Computer-aided detoxifier material design for animal feed Giulia Lo Dico <i>Fundation IMDEA Materials, Spain</i>	O22 Engineering hierarchical pore structures for improved catalytic performance of metal-organic frameworks Huan Doan <i>University of Bristol, UK</i>	O26 Controlling lithium transport and redox mechanism in cathode material Li ₃ RuO ₄ via short range order Alexander Squires <i>Department of Chemistry, University of Bath, UK</i>	O30 Bacterial Proliferation Modulation by a Membrane-Targeted Amphiphilic Azobenzene Giuseppe Maria Paternò <i>Fondazione Istituto Italiano di Tecnologia, Italy</i>
15:50	O19 Expanding the design space of gel materials with ionic liquids and protein biofluids Alex Brogan <i>King's College London, UK</i>	O23 Developing simulated research landscapes to assess the benefit of using machine learning in materials discovery Marcos del Cueto <i>University of Liverpool, UK</i>	O27 Muon spin relaxation measurements to study microscale cation diffusion in cathode materials for rechargeable batteries Beth Johnston <i>The University of Sheffield, UK</i>	O31 3D printing of a drug delivery implant formed from a dynamic supramolecular polyurethane and the study of 3D deposition of its reinforced analogue Sara Salimi <i>University of Reading, UK</i>
16:05	O20 Non-adiabatic transfer between ($\pi\pi^*$) and ($\pi\sigma^*$)-states in thioxanthene-TTF-(3,5-diphenyl-BODIPY). Arthur Martynov <i>National Research University of Electronic Technology (MIET), Russian Federation</i>	O24 Doped oxide nanocrystals: low and high temperature liquid-phase syntheses of functional nanomaterials Isabel Gómez Recio <i>CNRS-Sorbonne Université, France</i>	O28 Hexagonal Argyrodites: A New Family for Lithium Ion Conduction Alexandra Morscher <i>University of Liverpool, UK</i>	O32 Magnetically controlled drug delivery: Interaction of a cationic antimicrobial peptide with bare iron oxide nanoparticles. Chiara Turrina <i>Technical University of Munich, Germany</i>
16:20	Break			
Session chair	Serena Cussen			
16:30	Panel discussion: The role of materials chemistry in enabling sustainability Panellists: Jenny Baker, Keri Goodwin, Elizabeth Rowsell and Tony Ryan			
17:15	Close of formal sessions			

Tuesday 13 July 2021 (all timings are British Summer Time)				
10:30	Coffee session for researchers with caring responsibilities - Launching the Recharge Network			
Session chair	Cinzia Casiraghi			
11:00	PL02	Engineering van der Waals semiconductors for photonics Goki Eda National University of Singapore, Singapore		
11:45	Break			
	Materials for a changing future	Materials for design and development	Materials for energy	Materials for life
Session chair	Nirmalya Ballav	Iseult Lynch	Serena Cussen	Cameron Alexander
12:15	K10 High-throughput computational screening for MOF materials discovery: finding a needle in a haystack Peyman Moghadam University of Sheffield, UK	K11 Nanostructure analysis in real space: PDF studies of nanoparticle chemistry Kirsten Jensen University of Copenhagen, Denmark	K12 On the influence of structural disorder in solid ionic conductors and effective transport in solid state batteries Wolfgang Zeier University of Münster, Germany	K13 The fabrication of naturally-inspired polymeric nanostructured biomaterials Susan Kelleher Dublin City University, Ireland
12:40	O33 Quantum mechanical simulations of 2D materials for unconventional computing and biosensing applications Gabriele Boschetto CNRS-LIRMM/Université de Montpellier, France	O37 Bio-derived carbon dots as the building block for functional composite materials in the application of water purification Zhaoxuan Feng China University of Petroleum (East China), China	O41 α -Bi ₂ Sn ₂ O ₇ : a potential room temperature n-type oxide thermoelectric Warda Rahim University College London, UK	O45 Understanding elusive structure and transient interactions within pharmaceutical micelles using NMR spectroscopy Katarzyna Malec Wroclaw Medical University, Poland
12:55	O34 Effect of pH and Functionalisation of Self-Assembled Naphthalene Diimides for Smart Window Applications Becky Randle University of Glasgow, UK	O38 Designing bioinspired green nanosilicas using statistical and machine learning approaches Siddharth Patwardhan University of Sheffield, UK	O42 Hot-pressed polyelectrolyte complex membranes as monovalent selective alkaline-stable anion-exchange membranes Ameya Krishna B Universiteit Twente, Netherlands	O46 Water Soluble Nanotubular Architectures from Amphiphilic Dinucleobases Fatima Aparicio Universidad Autónoma de Madrid, Spain
13:10	O35 Computational screening of organic semiconductors: exploring side-group functionalisation and assembly to optimise charge transport in chiral molecules Julia A. Schmidt Imperial College London, UK	O39 Dual Emitting Silica Coated Carbon Dot Probes for DNA Dorothy Krizsan University College Dublin, Ireland	O43 Solvent-free synthesis and electrocatalytic water splitting activity of phosphorus-rich 3d metal phosphides Edward Gillan University of Iowa, USA	O47 Investigating the Impact of Fine Nanostructure in MRI Contrast Agents Sam Ackerley University College London, UK
13:25	O36 Tetrazines in Stimuli-Responsive Structures Ben Pilgrim University of Nottingham, UK	O40 Antimicrobial Electrospun Nanocomposite Membranes for Water Disinfection. Mark Hunter University of Liverpool, UK	O44 A structural and electrochemical investigation of the framework material Li ₃ Fe(MoO ₄) ₃ for application in battery cathodes Jasmin Clough University of Sheffield, UK	O48 The development of lanthanide-based building blocks for the synthesis of dual-imaging particles Catherine Marsden Loughborough University, UK
13:40	Break Early career activity (30 mins): Careers in chemistry Laura Woodward, Career & Professional Development Adviser RSC			
Session chair	Siddharth Patwardhan			
14:40	PL03	Materials Chemistry in a Refugee Camp Anthony Ryan University of Sheffield, UK		
15:25	Poster session			
16:30	Close of formal sessions			

Wednesday 14 July 2021 (all timings are British Summer Time)				
10:00	Poster session			
Session chair	Susan Quinn			
11:00	PL04	Chemistry for Nano, and Nano for Medicine & Energy Taeghwan Hyeon <i>Seoul National University, South Korea</i>		
11:45	Break Early career activity (30 mins): Transferable skills and how to market yourself effectively Laura Woodward, Career & Professional Development Adviser RSC			
	Materials for a changing future	Materials for design and development	Materials for energy	Materials for life
Session chair	Cinzia Casiraghi	Gareth Redmond	Rachel Evans	Susan Kelleher
12:45	K14 Multi-responsive and high-performance 2D materials based opto-electronic devices RSC/SCF Joint Lectureship in Chemical Sciences award winner Paolo Samori <i>Université of Strasbourg and CNRS, France</i>	K15 Materials-related Strategies for Highly Efficient Triboelectric Energy Generators Sohini Kar-Narayan <i>University of Cambridge, UK</i>	K16 Calcium based batteries: lessons learnt and challenges ahead Rosa Palacin <i>Barcelona, CSIC, Spain</i>	K17 Chiral Nanomaterials Yurii Gun'ko <i>Trinity College Dublin, Ireland</i>
13:10	O49 SARA ATRP synthesis of poly(ionic liquid) and weak polyelectrolyte diblock copolymers and their solution properties. Kayla Foley <i>University of Oklahoma, USA</i>	O53 Fractionation of block copolymers for pore size control and reduced dispersity in mesoporous inorganic thin films Alberto Alvarez Fernandez <i>University College London, UK</i>	O57 Classical polymer photocatalysts: a new versatile material class Calum Ferguson <i>Max-Planck Institute for Polymer Research, Germany</i>	O61 Identifying key structure-property relationships for RNA vaccine polymer transfection agents Pratik Gurnani <i>University of Nottingham, UK</i>
13:25	O50 Self-Assembly Around the Clock: A Systems Chemistry Approach to Materials Science Guido Panzarasa <i>ETH Zurich, Switzerland</i>	O54 Melt processing of cellulosic fibres with only water as plasticiser Emile Engel <i>KTH Royal Institute of Technology, Sweden</i>	O58 Oxygen production and storage using hexagonal manganites Alicja Klimkowicz <i>Shibaura Institute of Technology, Japan</i>	O62 Tuning the physical properties of Poly(N-isopropylmethacrylamide) microgels for biomedical applications – a structural analysis Danielle Winning <i>University College Dublin, Ireland</i>
13:40	O51 The Design of Light-Responsive Pickering Emulsions Kieran Richards <i>University of Cambridge, UK</i>	O55 Water catalysed crosslinking in poly(ϵ-caprolactone)/cellulose nanocrystals biocomposites via reactive melt processing Angelica Avella <i>Chalmers University of Technology, Sweden</i>	O59 Metal-Oxo Clusters – Molecular Analogues and Precursors to Photoactive Metal Oxides Sebastian Pike <i>University of Warwick, UK</i>	O63 In silico design and antiviral activity of hydrophobically-modified chitosan material William Matshe <i>Council for Scientific and Industrial Research, South Africa</i>
13:55	O52 Conjugated molecularly imprinted polymers for biological sensing Christina J. Kousseff <i>Queen Mary University of London, UK</i>	O56 How 3D Printed Polymeric Scaffolds Optimize Geometry, Mechanical Stability and Photocatalytic Performance of Nanoparticle-Based Aerogels Murielle Schreck <i>ETH Zurich, Switzerland</i>	O60 Lattice dynamics of Li3N across its superionic transition Gabriel Krenzer <i>Imperial College London, UK</i>	O64 Supramolecular and nanoparticles-based photosensitizers for multi photo and chemotherapies Donus Tuncel <i>Bilkent University, Turkey</i>
14:10	Break Ask the plenary speaker: Aron Walsh and Molly Shoichet Chairs: Serena Cussen, Susan Quinn and David Scanlon			
Session chair	David Scanlon			
14:45	PL05	Hybrid Halide Perovskites: Semiconductors with a Twist Aron Walsh <i>Imperial College London, UK</i>		
15:30	Poster session			
16:30	Close of formal sessions			
17:00	Quiz and networking (Quiz will be available to download from the menu bar)			

Thursday 15 July 2021 (all timings are British Summer Time)

	Materials for a changing future	Materials for design and development	Materials for energy	Materials for life
Session chair	Sohini Kar-Narayan	Rachel Evans	Susan Quinn	Dermot Brougham
11:00	K18	K19 Molecular Solar Thermal Management Systems Kasper Moth Poulsen <i>Chalmers University of Technology, Sweden</i>	K20 Dye-sensitized photoelectrocatalytic systems for hydrogen evolution and CO2 reduction Elizabeth Gibson <i>Newcastle University, UK</i>	K21 Impairment of Bone Quality by Non-Collagenous Proteins and Strontium Nanomaterials as Potential Osteogenic Therapeutics Alexandra Porter <i>Imperial College London, UK</i>
11:25	O65 A Study of Liquid Crystals formed by Low Molecular Weight Gelators Lisa Thomson <i>University of Glasgow, UK</i>	O69 Temperature-induced liquid crystal microdroplets and templated microparticles in a partially miscible liquid mixture Mehzabin Patel <i>University College London, UK</i>	O73 Supported molten-salt membranes for efficient CO2 separation Greg A. Mutch <i>Newcastle University, UK</i>	O77 Self-shrinking natural polymer-based microgels: assemblage and potential applications Jack Campbell <i>Nottingham Trent University, UK</i>
11:40	O66 Engineering dynamics in porous materials: ultrafast rotational motion at 2K and modulation of porosity by light-triggered molecular switches Jacopo Perego <i>University of Milano-Bicocca, Italy</i>	O70 Porous materials towards CO2 capture and direct calorimetric measurement of adsorption heat. Charl Bezuidenhout <i>University of Milano-Bicocca, Italy</i>	O74 Molecular anodes and cathodes for artificial photosynthesis Roc Matheu <i>Stanford University, USA</i>	O78 Nitric Oxide Releasing Electrospun Nanofiber Membranes for Antimicrobial Skin Tissue Engineering Man Li <i>University of Liverpool, UK</i>
11:55	O67 Metal-Organic Frameworks - Spin Crossover Complexes Hybrid Architectures for Sensing Applications Yuwei Shen <i>ESPCI, France</i>	O71 Ionic Liquid based 3D printable Ionogels for Applications as Electrolytes Alyna Lange <i>University of Potsdam, Germany</i>	O75 Crystal Structures and Local Environments of NASICON-type Na3FeV(PO4)3 and Na4FeV(PO4)3 Positive Electrode Materials for Na-ion Batteries Sunkyu Park <i>University of Picardie Jules Verne, France</i>	O79 Looking behind the scenes - Insights into structure and properties of loaded polymer nanoparticles by (solid-state) NMR spectroscopy Ann-Christin Pöppler <i>University of Würzburg, Germany</i>
12:10	O68 Ammonia capture via an unconventional reversible guest-induced metal-linker bond dynamics in a highly stable Metal-Organic Framework Pengbo Lyu <i>ICGM, Univ. Montpellier, CNRS, ENSCM, France</i>	O72 Colloidal Photonic Crystals: Designed to Yield and Destined to Function Dwaipayan Chakrabarti <i>University of Birmingham, UK</i>	O76 Control of electronic and structural properties through multiple anion enabled superlattice design and synthesis Quinn Gibson <i>University of Liverpool, UK</i>	O80 Nitric oxide donor doped gelatin nanoparticles for the treatment of infections Jenny Aveyard <i>University of Liverpool, UK</i>
12:25	Break Early career activity (30 mins): How to publish with impact Lynn Murphy, Deputy Editor RSC			
Session chair	Peyman Z. Moghadam	Kasper Moth-Poulsen	Aron Walsh	Alexandra Porter
13:30	K22 Biocompatible Multifunctional Smart Wireless Medical Robots Inside Our Body Metin Sitti <i>Max Planck, Germany</i>	K23 Ionic Conduction in Hexagonal Perovskite Derivatives Abbie McLaughlin <i>University of Aberdeen, UK</i>	K24 Sustainable electrocatalysts based on advanced functional carbons: model systems and bioinspired strategies Paula Colavita <i>Trinity College Dublin, Ireland</i>	K25 Precision polymer nanostructures Corday-Morgan prize winner Rachel O'Reilly <i>University of Birmingham, UK</i>
13:55	O81 Pioneer applications of green-synthesised ZnO using apple derivatives Marta Alves <i>IST, Portugal</i>	O85 Materials Design Concepts for Carbene-Metal-Amides: Planar, Twisted or Tilted Alexander Romanov <i>University of Manchester, UK</i>	O89 Superaerophobic Hydrogels for Gas-Evolving Reactions Jungki Ryu <i>Ulsan National Institute of Science and Technology, South Korea</i>	O93 Bioinspired Nanocomposite Films for Human Comfort Thermal Management George Stiubianu <i>Institute of Macromolecular Chemistry Petru Poni Iasi, Romania</i>
14:10	O82 Hydrothermal synthesis: a green approach toward multifunctional organic and inorganic-organic hybrid materials Hipassia Moura <i>TU Wien, Austria</i>	O86 Reconciling CdSe/ZnS Quantum Dots and Liquid Crystals with Block Copolymer Ligands Miron Bugakov <i>Lomonosov Moscow State University, Russian Federation</i>	O90 Phase stability of the tin monochalcogenides SnS and SnSe: a quasi-harmonic lattice-dynamics study Ioanna Pallikara <i>The University of Manchester, UK</i>	O94 Time-programmed release of a drug model from Gelatin based rolled up biocapsules stabilized with Transglutaminase Jihane Mzoughi <i>CNRS IS2M UMR7361, France</i>
14:25	O83 Learning structure-energy relationships for accelerating the prediction of molecular crystal structures Graeme Day <i>University of Southampton, UK</i>	O87 Design and Assembly of Low Dimensional Inorganic Organic Hybrid Lead Halide Perovskites: Novel Semiconductors for Opto-Electronic Applications? Dirk Vanderzande <i>Universiteit Hasselt, Belgium</i>	O91 Pb or not Pb? Control of Structure and Optical Properties in Lead Free Halides for Photovoltaic Applications Robert Palgrave <i>University College London, UK</i>	O95 Polymer particles for biomedical applications Helen Willcock <i>Loughborough University, UK</i>
14:40	O84 Modelling gas diffusion through bioplastics for the advancement of sustainable packaging materials Jasmine Lightfoot <i>University of Bath, UK</i>	O88 Core-shell Nanostructured TiO2-x/CuO for Cyclic Carbonate Photo-generation Jeannie Tan <i>Heriot-Watt University, UK</i>	O92 Computational Modelling of Amorphous Microporous Materials Irene Bechis <i>Imperial College London, UK</i>	O96 Evaluating the Interaction of Nanoparticles with Chemical and Biological Targets Stefan Guldin <i>University College London, UK</i>

14:55	<p style="text-align: center;">Break Meet the RSC Editors: Join a networking room</p>	
Session chair	<p style="text-align: center;">Cameron Alexander</p>	
15:30	PL06	<p style="text-align: center;">Designer Hydrogels Enable Drug Discovery & Delivery Molly Shoichet <i>University of Toronto, Canada</i></p>
16:15	<p style="text-align: center;">Closing remarks</p>	