



RSC INTEREST GROUP  
SOLID STATE CHEMISTRY

# Early Career Researcher Meeting

Virtual Meeting

22<sup>nd</sup> - 23<sup>rd</sup>

September

2020

*Presenting research*  
*Sharing techniques*  
*Highlighting outreach*  
*Inspiring careers*

Join in on Twitter  
#2020ECRssc

# Tuesday 22<sup>nd</sup> September 2020

|   |               |  |
|---|---------------|--|
|   | 10:00 - 10:15 | <b>Welcome</b>   |
|   | 10:15 - 10:45 | <b>Invited Speaker: Dr Lucy Clark, University of Birmingham, UK</b>  |
| Session 1<br>Chair: Struan<br>Simpson       | 10:45 - 11:00 | <b>Otto Mustonen (Sheffield University, UK)</b><br>Non-magnetic cations can drive magnetic interactions in double perovskites  |
|   | 11:00 - 11:15 | <b>Gaynor Lawrence (University of Aberdeen, UK)</b><br>A Nuclear and Magnetic Structure Study of the Oxyprictide $\text{Sr}_2\text{Mn}_{2.23}\text{Cr}_{0.77}\text{As}_2\text{O}$  |
|   | 11:15 - 11:30 | <b>Nicola Kelly (Cambridge University, UK)</b><br>Structural and magnetic properties of hexagonal $\text{Ba}_3\text{Tb}(\text{BO}_3)_3$  |
|   | 11:30 - 11:45 | <b>Alasdair Bradford (University of St. Andrews, UK)</b><br>Chemically Tailorable Frustrated Systems: Structural Parity and Disparity in Related $\text{AM}(\text{C}_2\text{O}_4)_{0.5}\text{F}_2$ (AM = $\text{NH}_4^+$ , $\text{Co}^{2+}$ , $\text{Cs}^+$ , $\text{Mn}^{2+}$ ) |
|   | 11:45 - 12:00 | <b>Break</b>   |
|   | 12:00 - 12:30 | <b>Invited Speaker: Dr Eve Wildman, University of Aberdeen, UK</b>   |
| Session 2<br>Chair:<br>Nathalie<br>Fernando | 12:30 - 12:45 | <b>Hanna Boström (Uppsala Universitet, Sweden)</b><br>Spin crossover in the Prussian blue analogue $\text{FePt}(\text{CN})_6$ induced by pressure or X-ray irradiation   |
|   | 12:45 - 13:00 | <b>James Fraser (University of Glasgow, UK)</b><br>Controlling the Growth of Metallic and Semiconducting 2D-Chalcogenide by Chemical Vapour Deposition   |
|   | 13:00 - 13:15 | <b>Andrei Novitskii (National University of Science and Technology MISIS, Russia)</b><br>Reactive spark plasma sintering of $\text{BiCuSeO}$ oxyselenides: challenges, phase formation mechanism and related thermoelectric properties   |
|   | 13:15 - 13:45 | <b>Lunch</b>   |
|   | 13:45 - 14:15 | <b>Invited Speaker: Dr Paul Sharp, University of Liverpool, UK</b>   |
| Session 3<br>Chair:<br>Elanor<br>Murray     | 14:15 - 14:30 | <b>Luisa Herring Rodriguez (University College London, UK)</b><br>Understanding the Surface Chemistry in Tin Dioxide Gas Sensors   |
|   | 14:30 - 14:45 | <b>Yong-Seok Choi (University College London, UK)</b><br>Computational investigation on the effect of hydrogenation treatment on $\text{Na}_2\text{Ti}_3\text{O}_7$ anode for enhanced Na-ion storage  |
|   | 14:45 - 15:00 | <b>Seán Kavanagh (University College London, UK)</b><br>Bandgap Lowering in Lead-Free $\text{Cs}_2\text{Ag}(\text{Sb}_x\text{Bi}_{1-x})\text{Br}_6$ Double Perovskite Alloys   |
|   | 15:00 - 15:15 | <b>Kieran Spooner (University College London, UK)</b><br>Optimising Transparent Conducting Oxides for Thermoelectric Applications  |
|   | 15:15 - 15:30 | <b>Break</b>   |
|   | 15:30 - 16:00 | <b>Invited Speaker: Dr Anna Regoutz, UCL, UK</b>   |
| Session 4<br>Chair:<br>Dr Jason<br>McNulty  | 16:00 - 16:15 | <b>Grant Howieson (University of St. Andrews, UK)</b><br>Incommensurate-commensurate transition in the geometric ferroelectric $\text{LaTaO}_4$  |
|   | 16:15 - 16:30 | <b>Magdalena Cichocka (Stockholm University, Sweden)</b><br>Deciphering the structure of complex nanocrystalline materials from TEM and XRPD   |
|   | 16:30 - 16:45 | <b>Kent Griffith (Northwestern University, USA)</b><br>High-rate Lithium-Ion Batteries with Complex Mixed Metal Oxide Anodes   |
|   | 16:45 - 17:00 | <b>Susan Cooper (University of Copenhagen, Denmark)</b><br>Elucidating Nanoscale Structure of Spinel Iron Oxide Nanocrystals Using Pair Distribution Function Analysis of Total X-ray Scattering Data: Influence of Nanocrystal Structure on Growth                              |
|   | 17:00 - 18:00 | <b>Social - breakout rooms - wine &amp; cheese</b>   |

# Wednesday 23<sup>rd</sup> September 2020

|  |               |  |
|--|---------------|--|
|  | 10:00 - 10:15 | <b>Welcome</b>   |
|  | 10:15 - 10:45 | <b>Invited Speaker: Dr Ulderico Ullissi, Nissan Motor Co., Ltd. UK</b>   |
| Session 5<br>Chair:<br>Wilgner<br>Silva            | 10:45 - 11:00 | <b>Arthur Youd (University College London, UK)</b><br>Computational investigation of earth abundant electrolytes of the $M_3AlP_2$ (M = Li, Na) system   |
|  | 11:00 - 11:15 | <b>Ashok Menon (Uppsala Universitet, Sweden)</b><br>Synthetic Pathway Determines the Non-equilibrium Crystallography of Li- and Mn-rich Layered Oxides   |
|  | 11:15 - 11:30 | <b>Laura Driscoll (University of Birmingham, UK)</b><br>Tunability of sodium-metal-sulfate frameworks for applications in Na-ion batteries   |
|  | 11:30 - 11:45 | <b>Break</b>   |
| Session 6<br>Chair:<br>Lizzie<br>Driscoll          | 11:45 - 12:00 | <b>Sacha Fop (University of Aberdeen, UK)</b><br>Ionic conduction in disordered hexagonal perovskite derivatives   |
|  | 12:00 - 12:15 | <b>Hande Alptekin (Imperial College London, UK)</b><br>Influence of Structural Changes on Sodium Storage Mechanism and Electrochemical Performance in Hard Carbons for Sodium ion Batteries                      |
|  | 12:15 - 12:30 | <b>Madeleine Georgopoulou (ILL, France)</b><br>$Zn_2$ -averievite: a new quantum spin liquid candidate   |
|  | 12:30 - 12:45 | <b>Emily Luke (University of Bristol, UK)</b><br>Engineering nanowires of high-temperature superconductors   |
|  | 12:45 - 13:15 | <b>Lunch</b>   |
| Session 7<br>Chair:<br>Dylan<br>Tawse              | 13:15 - 13:45 | <b>Invited Speaker: Dr Pooja Goddard, Loughborough University, UK</b>  |
|  | 13:45 - 13:55 | <b>Sophia Constantinou (University of Edinburgh, UK)</b><br>'Baking a Battery' - an educational resource to explain battery manufacturing  |
| Outreach<br>panel<br>Chair:<br>Dr Pooja<br>Goddard | 13:55 - 14:05 | <b>Annie Regan (Trinity College Dublin, Ireland)</b><br>NanoWOW: Materials Science for Kids  |
|  | 14:05 - 14:15 | <b>Emily Hanover (University of Birmingham, UK)</b><br>Development of new battery education resources for use in schools;<br>Explaining battery recycling methods and use of $LiFePO_4$ as an electrode material |
|  | 14:15 - 14:30 | <b>Outreach Q&amp;A Panel</b>  |
|  |               | (Final Judging Decisions)  |
|  | 14:30         | <b>Prize Winners Announced + Closing</b>   |