Mineralogical Society at 150: Past Discoveries and Future Frontiers

The University of Manchester

Mineralogical Society of the UK and Ireland

150 Years

PROGRAMME

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<tr><td></td><td>Schuster Foyer</td><td>Moseley Lecture Theatre</td><td>Rutherford Lecture Theatre</td><td>Blackett Lecture Theatre</td><td>Bragg Lecture Theatre</td><td>Moseley Lecture Theatre</td><td>Rutherford Lecture Theatre</td><td>Blackett Lecture Theatre</td><td>Moseley Lecture Theatre</td><td>Rutherford Lecture Theatre</td><td>Blackett Lecture Theatre</td></tr>
<tr><td>08.40</td><td></td><td></td><td>Welcome</td><td></td><td></td><td></td><td></td><td></td><td rowspan="11">Session 3</td><td rowspan="11">Session 6</td><td rowspan="11">Session 7</td></tr>
<tr><td>09.00</td><td></td><td colspan="3">Plenary - Williams</td><td colspan="3">Plenary - Brendlé</td></tr>
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<tr><td>17.00</td><td>Registration</td><td colspan="3">Plenary - Berry</td></tr>
<tr><td>18.00</td><td rowspan="2">Ice-breaker</td><td colspan="6">Awards and Closing</td></tr>
<tr><td>19.00</td><td colspan="4">Drinks reception + photograph (Whitworth Hall)</td></tr>
<tr><td>19.30-23.00</td><td></td><td colspan="4">Banquet (Whitworth Hall)</td></tr>
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Session 1: Universal: Mineralogy: then, now and beyond
Session 2: Biogeochemical impacts on mineral cycling in natural and engineered systems
Session 3: Minerals, Contaminant Dynamics and Remediation in the Environment
Session 4: Minerals for a Sustainable Environment
Session 5: Engineered minerals for existing and emerging technologies
Session 6: Critical Minerals and Energy Transition
Session 7: Evolving Mineralogy of the Earth System: Interactions within the Crust, Mantle and Core
Session 8: Crystal records of volcanic, magmatic and mineralisation processes
Session 9: Metamorphism and Fluid-Melt-Rock interactions within the lithosphere
Session 10: Advances in Mineralogical Analysis – Development of Techniques for 21st Century Research

Scan this code for a form to assess student presentations

You can also find a link at
https://minsoc-150.org/student-presentations/

Programme of Events

Monday, 22nd June
17.00-18.00 Registration (*Foyer, Schuster Building)* 18.00-20.00 Ice-breaker Reception – Schuster Building
Tuesday 23rd June
Rutherford Lecture Theatre 08.40 – Welcome
08.50-09.00 – Presentation by Sponsor – **Rigaku**
09.00–09.50 - **PLENARY**: Searching for Earth's missing magma oceans Williams, H., Amsellem, E., Matthews, S. and Puchtel, I. HALLIMOND LECTURE
09.50-10.00 – Presentation by Sponsor – **Blue Scientific Ltd.**
10.00-17.50 – Scientific Sessions 1, 4, 8, 10
18.45 – Pre-banquet drinks + group photograph. *Whitworth Hall* 19.30 – Banquet, including presentation of Society History by S. Shaw
Wednesday, 24th June
Rutherford Lecture Theatre 09.00–09.50 - **PLENARY**: Clay-Based Stimuli-Responsive Materials: A Versatile Platform for Smart Functional Systems Brendlé, J. GEORGE BROWN LECTURE
09.50-10.00 - Presentation by Sponsor – **Renishaw**
10.00-14.20 – Scientific Sessions 2, 5 and 9
14.30-15.00 – Poster Flash Presentations, Rutherford Lecture Theatre 15.00-15.10 - Presentation by Sponsor – **JEOL UK** 15.00-17.00 – Poster Session
18.30 – Society Medallists' Reception and Dinner hosted by E. and P. Grew (invitation only)
Thursday, 25th June
09.00-15.30 – Scientific Sessions 3, 6, 7
15.30-15.50 – Break
15.50-16.00 – Presentation by Sponsor – **Elemental Scientific Instruments**
Rutherford Lecture Theatre 16.00-16.50 - **PLENARY**: Research on the Edge Berry, A.J.
16.50–17.30 Presentation of Awards and Closing Ceremony

Moseley Lecture Theatre

Session 1: Universal: Mineralogy: then, now and beyond

Convenors: H. Pendlowski (The James Hutton Institute, Aberdeen), Ralf Gertisser (Keele University)

10.00-10.30	Rumsey, M. (KEYNOTE)	The Importance and the future of collections: Reviewing the critical relationship between national museums and subject specialist societies
10.30-10.50	Hansen, R.F	A short history of synthetic gem materials in the collections of the Natural History Museum, London
10.50-11.10	Gabriel, N.W. and Burleson, L.	Preserving susceptible minerals in museum collections
11.10-11.40	**BREAK**	
11.40-12.00	Brookshaw, D.R., Pearce, S.R., Wright, T. and Hartshorne, C.	The role of detailed mineralogical and chemical analyses in mine waste management
12.00-12.20	Turner, S.M.R., Gray-Wannell, N., Ghosh, U., Zhang, Z., and Hillier, S. REMOTE	Mineralogy of PFAS containing soils in Scotland: Correlations with clay minerals and Fe-oxides
12.20-12.40	**San-Cipriano, A**., Santamaría-López, A., García-Romero, E. and Suárez, M.	Mineralogical and textural characterization of APS minerals from the Madriguera deposit, Segovia (Spain).
12.40-13.10	Di Maggio, R.M. (KEYNOTE)	Tracing Crime through Minerals: The Role of Mineralogy in Forensic Investigations
13.10-14.00	**LUNCH**	
14.00-14.20	Henry, D.J.	150 years of tourmaline studies
14.20-14.40	Cámara, F., Holtstam, D. and Karlsson A.	A new polysomatic series among the lead silicates friisite and jagoite
14.40-15.10	Ma, Lin (KEYNOTE) MAX HEY MEDALLIST	Seeing Mineral Reactions in 4D: Imaging Dynamic Subsurface Processes from Micro- to Nano-scale
15.10-15.40	**BREAK**	
15.40-16.10	Hawthorne, F.C. (KEYNOTE) REMOTE	Crystal Chemistry: New Rules for the 21st Century
16.10-16.40	Hazen, Robert M. and Wong, Michael L. (KEYNOTE)	Time's Second Arrow: Mineral Evolution as a Case Study of a New Natural Law

Underlined = presenter; Bold + underlined = student presenter

Rutherford Lecture Theatre

09.00–09.50 - **PLENARY**: Searching for Earth's missing magma oceans
Williams, H., Amsellem, E., Matthews, S. and Puchtel, I. HALLIMOND LECTURE

Session 4: Minerals for a Sustainable Environment

Convenors: John MacDonald (University of Glasgow), David McNamara (University of Liverpool), Faisal Khudhur (University of Edinburgh)

10.00-10.20	**Ardhanari, M.**, Moore. K.M., Gallagher, L., Franks. D.M., Segura-Salazar, J., Yan. X. and Zils, M.	Valuing sand for sustainable resource transitions
10.20-10.50	Bastianini, l., Rogerson, M., Campbell, J., Baltruschat, S., Hartmann, J., Foteinis, S., Millar, R., Yang, A., Lu, X., Thoutam, P., Kapadia, A., Harrington, K., Rosair, G., Higgins, S., Buckman, J., Renforth, P. and Mayes, W. (KEYNOTE)	Minerals in the Anthropocene: Carbonate Formation, Contaminant Dynamics and Engineered Alkalinity
10.50-11.10	Burke, I. T., Mayes W.M. and Renforth, P.	Mineralogical Controls on Carbonation Rates and Vanadium Leaching Behaviour in Alkaline Steel-Slag Systems
11.10-11.40	**BREAK**	
11.40-12.00	McNamara, D.D., Pasquet, P., Gardner, J., and IODP Expedition 395 Science Party	Offshore Mineral Carbonation Potential: Insights from the Mid-Atlantic Ridge
12.00-12.20	**Alexander, J.S.**, McNamara, D., Mariani, E., Gardner, J., Cooper, M.	Mineralogical Controls on Mineral Carbonation of Basalt: Alteration and Zeolitisation in the Antrim Lava Group
12.20-12.40	Stevenson, S.C., Lunn, R. and Stillings, M.	Mechanochemical carbon capture using rock substrates
12.40-13.00	**Doñagueda Suso, B.**, Stevenson, S., Stillings, M., Shipton, Z. and Lunn, R.	Understanding Direct CO_2 Uptake In Polymineralic Rocks Using Mechanochemistry
13.00-14.00	**LUNCH**	
14.00-14.20	Farrell, N.J.C., Yang, L., Flowerdew, M.J., Mark, C., Ardo, B., Taylor, K.G., Bigaroni, N., Pointon, M., Hughes, L., Waters, J. and Paul, L.	Feldspar alteration by disequilibrium CO_2–H_2O fluids in reservoir sandstones: Implications for carbon capture and storage (CCS)
14.20-14.40	Ghasemi, M.	Clay Minerals in Subsurface Hydrogen Storage: A Molecular-Scale Perspective
14.40-15.00	Khudhur, F., Butler, I. and Gilfillan, S.M.V.	The applicability of image-based analyses in the study of CO_2 mineralization
15.00-15.30	**BREAK**	
15.30-16.00	Manning, D.A.C. (KEYNOTE)	Minerals: the Achilles Heel in Enhanced Rock Weathering
16.00-16.20	**Dickinson, H.**, MacDonald, J.M. and Toney, J.	Enzyme-Mediated Multiphase Precipitation (EMMP): Coupled Carbonate–Phosphate Mineralisation for Sustainable Metal Immobilisation and Carbon Removal

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16.20-16.40	Aghdam, M.M., Crowley, Q. and Guyett, P.	Multi-Scale Insights Linking Minerals to Gamma Radiation, Radon and Thoron in Building Materials
16.40-17.00	**Lo, Pok Man Ethan**, Littleton, J.A.H., Evans, A.J.M., McElhinney, T.R., Wang, B. and Hunt, S.A.	Phase Diagram of Olivine-Structured Battery Cathodes: $LiMPO_4$ (M = Mn, Fe, Ni)
17.00-17.20	Peacock, C.L., Xiao K-Q., Moore, O.W., Babakhani, P., Zhao, M., Curti, L., Dale, A.W. and Woulds, C.	Mineralogical controls on organic carbon stabilisation and persistence
17.20-17.40	Babakhani, P., Dale, A.W., Sedighi, M. Jazaei, F. and Peacock, C.L.	Artificial intelligence predicts mineral protection of organic carbon in global marine sediments
17.40-18.00	**Aliyeva A.**, Abdullayev, E. and Lemarchand, D. REMOTE	Smectite illitization in mud volcano systems: Implications for geological CO_2 storage – a natural analogue study from Azerbaijan

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Blackett Lecture Theatre

Session 8: Crystal records of volcanic, magmatic and mineralisation processes

Conveners: Mike Stock (Trinity College Dublin), Steven Hollis (University of Edinburgh), David Neave (University of Manchester), Owen Weller (University of Cambridge)

10.00-10.20	Cooper, G.F., Bucholz, C.E., Kay, S.M. and Kay, R.W.	Lower crustal melt evolution revealed by crystal scale isotopes in plutonic xenoliths from Mt. Adagdak, Aleutian arc
10.20-10.40	Gertisser, R., Goto, Y. and Li, X.	Tracing magma evolution from caldera-forming to post-caldera volcanism at Toya volcano, Hokkaido, Japan
10.40-11.10	Hughes, H.S.R. (KEYNOTE)	What sulphides can tell us from the mantle to mineral deposits
11.10-11.40	**BREAK**	
11.40-12.00	Bowles, J.F.W., Suárez, S., Zaccarini, F. and Garuti, G.	Crystal records describe the emplacement of the Freetown Intrusion, Sierra Leone.
12.00-12.20	**Church, A.J.**, Broom-Fendley, S., Simonet, C. and Wall, F.	Carbonatite-associated gallium mineralisation: A case study from Monte Muambe, Mozambique
12.20-12.40	**Cisse, D**. and Wafik, A. REMOTE	Did tholeiitic magma differentiation control the petrogenesis of sulfide mineralization in the Kettara intrusion, or were metals subsequently redistributed by fluids and deformation?
12.40-13.00	**Hendrickx, T.J.**, Allaz, J.M., Freudenstein, A.E., Wickland, T. and Bachmann, O.	Late Magmatic Fluids Drive Evolution and REE Mineralization in the Pikes Peak Batholith, Colorado
13.00-14.00	**LUNCH**	
14.00-14.20	Hepworth, L.H.	Syn-magmatic brecciation of a vertically-oriented crystal mush during fault-controlled dyke emplacement in the Rum Central Intrusion, NW Scotland
14.20-14.40	**Hughes, R.R.**, Hartley, M.E., Murton, B.J. and Neave, D.A.	Crystal cargoes along the Reykjanes Ridge: insights into magmatic processes at a slow-spreading, plume-influenced mid-ocean ridge
14.40-15.00	**Vitarelli, D.C.**, Tomlinson, E.L., O'Sullivan, G.J., Koch H.A., Daly J.S., Belgrano, T.M., van Acken D., Brodbeck, M. and Corella Santa Cruz, C.R.	Utilizing U-Pb and novel *in situ* Sr-Nd isotope chemistry of apatite to resolve tephrochronology and petrogenetic origins of altered volcanics
15.00-15.30	Higgins, O., Stock, M.J., Geist, D., Neave, D.A., Buisman, I., Bernard, B. and Gleeson, M. (KEYNOTE)	Annual-to-millennial fluctuations in the physical properties of magma storage zones
15.30-16.00	Neave, D.A., Weller, O., Marxer, F., Sodeman, C., Hartley M.E., Holtz, F. and Namur, O.	Clinopyroxene records of magmatic oxygen fugacity: insights from experiments and thermodynamic modelling

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16.00-16.20	Roberts, N.M.W., Gardiner, N.J., Mangler, M.F. and Tapster, S.R.	Tracking magmatic processes and lithium fertility through zircon chemistry
16.20-16.40	**Subbaraman, R.**, Hughes, L., Hartley, M.E. and Neave, D.A.	Microstructural record of Icelandic crystal mushes preserved in gabbroic nodules
16.40-17.10	Dutrow, B.L. (KEYNOTE) **COLLINS MEDALLIST**	Serialsomatism of tourmaline: An indicator of geothermal system evolution

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Bragg Lecture Theatre

Session 10: Advances in Mineralogical Analysis – Development of Techniques for 21st Century Research

Convenors: George Cooper (Cardiff University), J.F.W. Bowles (Private) and Marie-Laure Bagard (University of Cambridge)

10.00-10.20	Salge, T., King, A.J., Lee, R.M. and Russell, S.S.	Out of Space, Under the Beam: Low-Dose SEM–EDS of Fragile Phases in Carbonaceous Chondrites and Asteroid Bennu Return Samples.
10.20-10.40	Stonadge, G.R. and Spasevski, L.	No WDS? No Problem! Why Do Mineralogists Continue to Overlook EDS?
10.40-11.00	Allaz, J.M., Donovan, J. and von der Handt, A.	Time dependent intensity correction and other recent software advances for quantitative analysis by electron probe microanalyzer (EPMA)
11.00-11.40	**BREAK**	
11.40-12.10	Le Pape, P., Blanchard, M., Ona-Nguema, G., Cabaret, D., Benzerara, K., Juhin, A., Chassé, M., Baptiste, B., Morin, G., Battaglia-Brunet, F., Juolian, C., Fernandez-Rojo, L., Resongles, E., Héry, M., Casiot, C., Landrot, G., Belkhou, R. and Rueff, J.-P. (KEYNOTE)	Analysis of arsenic speciation in contaminated samples: a multi-scale approach from standard XAS to advanced X-Ray spectroscopies
12.10-12.30	Mosselmans, J.F.W.	Developments in geological studies by X-ray spectroscopy techniques at Diamond Light Source
12.30-12.50	**Waters, C.**, Neill, T.S., Morris, K., Baker, M.L., Alcock, M.L., Mosselmans, J.F.W., Ignatyev, K. and Shaw, S.	Developing U L3 and M4,5 -edge HERFD-XANES to investigate uranium (bio)geochemical processes in radioactive waste disposal and nuclear decommissioning.
12.50-14.00	**LUNCH**	
14.00-14.30	Whitehouse, M.J.	Large-geometry SIMS – analytical capabilities and novel applications in the earth, planetary and environmental sciences
14.30-14.50	Stavropoulou, A., Stonadge, G. and Rider-Stokes, B.	Non-destructive SEM-BEX geological sample analysis: a new workflow for high-resolution analysis of unprepared samples
14.50-15.10	Bowles, J.F.W.	The calculation of a mineral age from microprobe analyses of U, Th and Pb
15.10-15.30	Ghosh, U., Upadhyay, D., Dunkel, K.G., Chandra, D. and Barnhoorn, A. REMOTE	Integrated analytical workflow for decoding tourmaline-orbicule crystallisation in granitic environments
15.30-16.00	**BREAK**	

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16.00-16.20	Mitsis, I., Christidis, G.E., Gkamaletsos, P.N., Mocuta, C. and Thiaudiere, D.	The Odyssey of a Ni-phyllosilicate: An adventure of the missing smectite.
16.20-16.40	Taylor R.J.M.	Why Automated Mineralogy needed an upgrade

Moseley Lecture Theatre

Session 2: Biogeochemical impacts on mineral cycling in natural and engineered systems

Convenors: John Moreau (Glasgow), Casey Bryce (University of Bristol), Jon Lloyd (University of Manchester)

10.00-10.30	Santos, A. (KEYNOTE)	The evolution of biomining through the lifetime of the Mineralogical Society
10.30-10.50	Stigliano, L., Rehmanji, M. and Cosmidis, J.	Cyanobacterial influence on carbonate precipitation under varying geochemical conditions revealed by high-throughput correlative imaging and Raman spectromicroscopy
10.50-11.10	**Brijit, A.J.**, Singh, V.V., Klier, P., Kumar, N., Kimber, R., Barthélémy, P., Rose, J., Kraemer, S.M. REMOTE	Adsorption and enzymatic degradation of DNA on goethite in the presence of phosphate and divalent cations
11.10-11.40	**BREAK**	
11.40-12.00	Byrne, J. M. HOWIE BEST PAPER PRIZE (KEYNOTE)	Iron biogeobatteries, their influence on redox cycling, and their application
12.00-12.20	Moreau, J.W., Voutsinos, M.Y. and Banfield, J.F.	Mineralogical and metagenomic evidence for enhanced REE cycling in a granitic saprolite soil microbiome
12.20-12.40	Mills, S.J., Missen, O.P., Villalobos-Portillo, E. and Brugger, J.	Nanoparticles and bacterial mediation in the mobilisation of toxic critical metals: implications for tellurium and cobalt cycling
12.40-13.00	Falagán, C.	Nutrient availability dictates microbial ecology in acidic environments
13.00-13.50	**LUNCH**	
13.50-14.20	Watkin, E., Khaleque, H. and Van Alin, A. (KEYNOTE)	Leveraging Microbe-Driven Geochemical Cycles to Enable Sustainable Critical Mineral Recovery

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Blackett Lecture Theatre

Session 5: Engineered minerals for existing and emerging technologies

Conveners: Rick Kimber (University of Manchester), Kirill Shafran (BYK Additives, UK), Chris Egan-Morriss (University of Manchester)

10.00-10.20	Chen, L., Mason, A., Pepper, S., Waters, S. and Corkhill, C.L.	Evaluating Disposal of Plutonium Wasteforms
10.20-10.40	**Margreiter, R.**, Neill, T., Shaw, S., Bower, W., Morris, K.	Fate of disposal relevant UO_3 and U_3O_8 in a phosphate cement backfill
10.40-11.00	Shafran, K.	Highly Anisotropic Engineered Minerals – A Treasure Trove of Industrial Applications
11.00-11.40	**BREAK**	
11.40-12.10	Hochella Jr., M.F. and Babakhani, P. (KEYNOTE)	Can engineered minerals significantly slow global warming? An example where this could be the case
12.10-12.30	Dresch, L., Marsh, A.T.M., Bejjarapu, D.S., Neumann, A., Scrivener, K.L. and Matos, P.R.	Mechanical amorphisation of minerals in clay-based mining wastes for the production of low-carbon cements
12.30-13.00	Cosmidis, J., Stigliano, L. and Rehmanji, M. (KEYNOTE)	Towards growing and engineering minerals using bacteria: high-throughput approaches to decoding biomineralization
12.50-13.50	**LUNCH**	
13.50-14.10	Pawley, A.R., Dowling, J., Ownsworth, E., Liu, Y., Covey-Crump, S.J. and Jones M.A.	Mineralogy of high-temperature aircraft engine deposits

Rutherford Lecture Theatre

09.00–09.50 - **PLENARY**: Clay-Based Stimuli-Responsive Materials: A Versatile Platform for Smart Functional Systems
Brendlé, J. GEORGE BROWN LECTURE

Session 9: Metamorphism and Fluid-Melt-Rock interactions within the lithosphere

Convenors: Richard Palin (University of Oxford), Richard White (University of St Andrews), Charlotte Simpson (University of Oxford)

10.00-10.20	Yardley, B.	Metamorphism – a perspective on progress since the Mineralogical Society centenary
10.20-10.40	**Fanesi, E.**, Brooker, R.A., Clark, S. M., Liu, X., Koemets, E., Kleppe, A. K. and Lord, O. T.	Cratonic serpentinization: new nanoscale insights into the role of spinel and fluids in hydrogen production
10.40-11.10	Tomlinson, E.L., Rodrigues, R.F., Melai, C., Kamber, B.S., Kaekane, B.K. and Piazolo, S. (KEYNOTE)	Komatiite-peridotite interaction and Mg/Si systematics in the Archaean mantle
11.10-11.40	**BREAK**	
11.40-12.00	Wheeler, J.	Interactions between metamorphism and deformation: some key challenges
12.00-12.20	Waters, D.J.	Grain-scale processes during retrograde transformation of eclogite-facies rocks in W Norway: fluid access and deformation are not strongly coupled
12.20-12.40	Carter, E.J., Burgess, R., Tartèse, R., Coggon, R.M. and Evans, A.D.	A unique sixty-million-year record of low temperature fluid metasomatism in oceanic lithosphere
12.50-14.00	**LUNCH**	

Moseley Lecture Theatre

Session 3: Minerals, Contaminant Dynamics and Remediation in the Environment

Convenors: L. Townsend (Nuclear Waste Services, UK), A. Neumann (Paul Scherrer Institute, Switzerland), K. Rothwell (Stirling University)

09.00-09.20	Bowell R.J., Jamieson H.E. and Dobosz, A.	Natural attenuation of Cobalt and Nickel in mine waste
09.20-09.40	**Wort, C.T.**, Lloyd, J.R., Morris, K. and Shaw, S.	Geomicrobial controls on radionuclide speciation and fate during geodisposal of radioactive waste
09.40-10.00	Robinson, C., Kravvi, K., Hao, J., Morris, K., Gomez Gonzalez, M. and Shaw, S.	Nano-scale interactions of radionuclides with LSS Rock
10.00-10.30	Pearce, C.I., LaVerne, J., Emerson, H., Lawter, H., Szecsody, J., Mackley, R., Zhang, X., Wang, Z., Rosso, K., Schenter, G., Young, L., Orlando, T., Clark, A., Li, X. and Francesconi, L. (KEYNOTE)	Mechanistic Roles of Minerals in Radionuclide Behaviour at the DOE's Hanford Site
10.30-11.00	**BREAK**	
11.00-11.30	Perez, J.P.H. (KEYNOTE)	Redox-active iron (nano)minerals and their impact on contaminant behaviour in natural and engineered systems
11.30-11.50	**Reid, F.**, Singh, V. V., Krämer, S. M., Coker, V. S. and Kimber, R. L.	Adsorption and stability of double-stranded RNA at goethite surfaces
11.50-12.10	**Feng, M.**, Richards, L.A., Polya, D.A., and Lloyd, J.R.	Perfiormance of Fe-modified biochars and carbo-iron in remediating arsenic in groundwater
12.10-12.30	**Attfield, S.A.**, Bryce, C., Bostick, B., Byrne, J.M.	A sustainable and cost-effective method of uranium and arsenic removal using biogenic iron minerals
12.30-12.50	**Shaughnessy, L.**	Developing (bio)remediation options for high pH radionuclide contaminated land and water
12.50-14.00	**LUNCH**	
14.00-14.20	**Cai, He**, Neill, T.S., Morris, K., Stockdale, A. and Shaw, S.	Mechanistic insights into the reductive incorporation of Tc(IV) in Fe(II)-doped LDHs
14.20-14.40	Delina-Agillon, R.E., Bateman, K., Lacinska, A.M., Vosper, M., Perez, J.P.H. and Benning, L.G.	Experimental investigation of toxic metal behaviour during laterite mine waste formation
14.40-15.00	Boyanov, M.I., O'Loughlin, E.J., Kemner, K.M.	Uranium speciation in reducing environments: from uraninite to U(IV) complexes with minerals and organics
15.00-15.20	Majzlan, J., Jurkovič, Ľ., Faragó, T., Koděra, P. and Števko, M.	Weathering of minerals of tungsten and its environmental mobility

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Rutherford Lecture Theatre

Session 6: Critical Minerals and Energy Transition

Martin Smith (University of Brighton), Hannah Grant (British Geological Survey), Adrian Finch (University of St. Andrews), Holly Elliott (British Geological Survey)

09.00-09.30	Josso, P. (KEYNOTE)	Intelligence, strategy, and the shifting landscape of critical raw materials in the UK: the role of CMIC in bridging policy and practice
09.30-09.50	Wall, F.	Thinking about the connections between minerals research and the responsible sourcing of critical raw materials
09.50-10.10	Jenkin, G.R.T., Gibaga, C.R.L., Mubaira, Symons, J., Tanciongco, A., Swift, R., Chambers, J., Yan, Y., Crane, R., Gervasio, J.H., Tungpalan, K., De Oliveira, V., Tibbett, M., Samaniego, J.O., Arcilla, C.A. and the PROMT consortium	Don't dig it up! In situ reprocessing and remediation of Cu mine tailings
10.10-10.30	**Tanciongco, A.**, Jenkin, G.R.T. and Bird, P.	Legacy Slags as Critical Metal Resources: Geochemical Insights from a Cornish Historic Copper Smelting Site
10.30-11.00	**BREAK**	
11.00-11.20	**Bronziet, J.**, Hartley, M.E., Neave, D.A. and Covey-Crump, S.	Using Appinite Geochemistry to Understand Critical Metal Mineralisation in the Scottish Highlands: A Mineral Systems Approach
11.20-11.40	**Kwanang, K.K.**, Santoro, L., Li, M.Y.H., Ngo Bidjeck, L.M. and Ndjigui, P.-D.	Trace elements and REE behaviours in nepheline syenite and related weathering materials in tropical climatic conditions: case study of Eboundja nepheline syenite (Southern Cameroon)
11.40-12.00	Smith, M.P., Maciag, B., Broom-Fendley, S., Li, M.Y.H., Wall, F., Kumar, P., Rooks, C., Grasten, T. and Geraki, K.	Macro- to nanoscale mineralogical controls on the genesis of deep weathered carbonatite REE deposits
12.00-12.20	Broom-Fendley, S., Littler, K., Evenstar, L., Chen, W., Li, M.Y-H., Yang, F., Smith, M. and Wall, F.	Dating carbonatite weathering using U–Pb in apatite
12.20-12.40	**Evans, A.J.M.**, Tibble-Howlings, J., Littleton, J.A.H., Farrell, N.J.C., Neave, D.A., Hartley, M.E. and Hunt, S.A.	Understanding Lithium Leaching from Lithium-Bearing Granite and Polylithionite: Implications for Lithium Extraction from Geothermal Brines,
12.40-13.00	Oskierski, H.C., Ncube, T., Alhadad, M., Chischi, J., Abdullah, A.A., Senanayake, G. and Dlugogorski, B.Z.	Mineralogical transformations during extraction of lithium from spodumene
13.00-14.00	**LUNCH**	

Underlined = presenter; Bold + underlined = student presenter

14.00-14.30	McFall, K.A., McDonald, I., Hanley, J.J., Kerr, M., Yudovskaya, M.A., Kinnaird, J., and Tattitch, B. (KEYNOTE)	Volatiles and the Many Types of Melt: Why Critical Metals Aren't Always Where Expected In Ore Deposits
14.30-14.50	Jemmali, N., Bertrandsson Erlandsson, V., Melcher, F., Rddad, L. and Souissi, F. REMOTE	Critical Metal Enrichment in Sphalerite from Zn–Pb–F–(Ba–Sr) Deposits, Northern Tunisia: Implications for Mississippi Valley-type Systems
14.50-15.10	**Ryczek, D.J.**, Farrell, N.J.C., Hollis, C., Healy, D. and MCCLENAGHAN, S.H.	Critical Mineral Enrichment in the Carboniferous Carbonate-hosted Deposits of the Pb-Zn-F Orefields of Northern England and Wales
15.10-15.30	Stillings, M.S., Stevenson, S., Donagueda Suso, B., Hope, M., Head, A. and Lunn, R.J.	Evidence for mechanochemical CO_2 trapping as silicon carbonates and mineral lattice cages by comminution of silicate rocks in CO_2
15.30-16.00	**BREAK**	

Rutherford Lecture Theatre

16.00-16.50 - **PLENARY**: Research on the Edge

Berry, A.J.

Blackett Lecture Theatre

Session 7: Evolving Mineralogy of the Earth System: Interactions within the Crust, Mantle and Core

Conveners: Alfred Wilson (University of Leeds), Fred Richards (Imperial College London), Simon Hunt, Tara McElhinny and Josh Littleton (University of Manchester), Ollie Lord (University of Bristol)

09.00-09.20	Mariani, E., Dandekar, S., Dandekar, T.R., Khatirkar, R.K., Pande, K., Gardner, J., Bagshaw, H., Randive, K. and Peshwe, D.	Kyanite-muscovite-dumortierite vein mineralisation mechanisms from advanced microstructural analysis using EBSD.
09.20-09.40	Pandey, R., Singh, N.K., Debnath, S., Giuliani, A., Lorenzo, T., Belyatsky, T., Chalapathi Rao, N.V., Chew, D., Amal Dev, J. and Tomson, J.K. REMOTE	Tracing Paleoproterozoic fluid events using Apatite from the Dharwar Craton and adjoining Granulite Terrane boundary
09.40-10.00	Hazen, Robert M.	Deep-Time Mineralogical Metaphors: Arrows, Cycles, Trees, and Networks
10.00-10.20	Xiong, F., Mugnaioli, E., Xu, X., Yang, J., Wirth, R., Grew, E.S. and Yates, M.G. (*to be presented by R.M. Hazen*)	Wangxibinite, TiFe: a new mineral with implications for the interpretation of an enigmatic coesite-bearing fragment from the Luobusa ophiolite, Tibet, China
10.20-11.00	**BREAK**	
11.00-11.20	Ledoux, E. E., Buchen, J., Wang, B., Satta, N., Trautner, V., Criniti, G., Méndez, A.S.J., Liermann, H.-P. and Marquardt, H.	The stishovite to post-stishovite transition under cyclic loading in the dynamic diamond anvil cell
11.20-11.40	Sharma, S. and Shukla, G.	Compositional Signatures of (Fe,Al)OOH and Their Implications for the Lowermost Mantle
11.40-12.00	Najorka, J., Collings, I.E., Kleppe, A.K., Koemets, E. and Welch, M.D.	Structural evolution of the hydroxyperovskite $MgSi(OH)_6$ up to 23 GPa: implications for water storage in cold subduction zones
12.00-12.20	Cámara, F., Day, M.C., Wang, Y., Innocenzi, F., Ardit, M., Luth, R.W., Pearson, D.G., Weiss, Y., Timmerman, S., Pamato, M.G., Novella, D., Rotiroti, N., Grässlin, J., Schüermann, C.J., Barbaro, A., Qu, K., and Hou Z. and Nestola, F.	A MED study of nanometric mineral inclusions in fluid-rich diamonds
12.20-12.40	O'Sullivan, G.J., Tomlinson, E.T. and Hoare, B.C.	Diamond ages from the Premier kimberlite
12.40-13.10	Breithaupt, T. (KEYNOTE)	Predicting the strength of the lithosphere: a new microphysical model of semibrittle
13.10-14.00	**LUNCH**	

14.00-14.20	McElhinney, T.R., Heinen, B.J., Walker, A.M., Rogmann, E.-M., Fanesi, E., Vlasov, K., Pamato, M.G., Ezad, I.S., Daisenberger, D., Lord, O.T. and Hunt, S.A.	Reassessing the Onset and Effects of Dynamic Recrystallization in Metals at High Pressure
14.20-14.40	Kubik, E., Makhatadze, G.V., Zhu, D. and Schulze, M.	Isotopic fractionation during core formation on terrestrial planets
14.40-15.10	Jackson, J.M., Zhou, C., Dobrosavljevic, V.V., Zhang, D., Sturhahn, W., Toellner, T.S., Zhao, J., Hu, M., Chariton, S. and Prakapenka V.B. (KEYNOTE)	A spatiotemporal approach to melting investigations: A spotlight on Earth's core-mantle boundary

Session 1: Universal: Mineralogy: then, now and beyond

Gasimov, N., Hamzayeva, T. and **Abdullayev, E.**	Goethite alteration in sulphate-rich brines on Mars: Implications for organic molecule preservation
Pendlowski, H.A.	Layers of Discovery: Clay Mineralogy at the James Hutton Institute
Wang, B., Xu, Z. and Hunt, S.A.	Non-Ambient Raman Spectroscopy of Olivine-Type Lithium Battery Cathodes: $LiMPO_4$ (M = Fe, Mn, Ni, Co)

Session 2: Biogeochemical impacts on mineral cycling in natural and engineered systems

Barclay, M., Coker, V.S. and Kimber, R.L.	Impact of biomolecules on iron (oxyhydr)oxide transformations
Byrd, N., Felgate, H., Egan-Morriss, C., Robinson, C., Nunn, E.J., Morris, K., Natrajan, L.S., Webber, M. and Lloyd, J.R.	Using Engineering Biology to Understand and Enhance Uranium Biomineralisation
Stott, L., Kimber, R. L., Coker, V. S., Lloyd, J.R.	Characterisation of ochreous mining waste in the UK to optimise sustainable bioprocessing of iron oxyhydroxides
Rose, M. N., Morris, K., Shaw, S. and Lloyd, J.R.	Microbial Activity Associated With Host Rocks of Relevance to Geological Disposal Of Radioactive Waste

Session 3: Minerals, Contaminant Dynamics and Remediation in the Environment

Cooper, J., Neill, T.S., Natrajan, L., Stagg, O. and Coker, V.S.	Criticality safety: Investigating the co-mobility of actinides and neutron absorbers in radioactive waste disposal
Ives, M. and Cumberland, S.A.	Influence of tufa Deposition on the Transport and Mobility of Lead and Zinc in Downstream Environments on the River Lathkill
Jones, W., Graham, J., Morris K., Shaw, S. and Coker, V.	Radionuclide Fate in On-Site Disposal of Activation Product Contaminated Wastes
Koepnick, H.R., Peyton, B.M. and Lauchnor, E.L.	Nitrate-dependent iron oxidation for remediation of selenium and nickel in mining wastewaters
Kraavi, K., Morris, K., Robinson, C., Abrahamsen-Mills, L. and Shaw, S.	Geochemical Controls on Radionuclide Adsorption and Fate in Lower Strength Sedimentary Rock
Morris, K., Coker, V., Foster, L., Lloyd, J.R., Neill, T., Shaw, S., Stetten, L. and Stockdale, A.	The RADioactive waste and Environmental Remediation National Nuclear User Facility: A Unique Capability for Nuclear Minerals, Contaminant Dynamics and Remediation Research
Painter, P.R.W., Litherland, S.P., Byrne, J.M., Corkhill, C.L.	Ni retention during devitrification of high-level radioactive waste glasses

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Snow, R., Shaw, S., Morris, K., Bassil, N., Bower, W. and Lloyd, J.	Geological fate and impact of isosaccharinic acid
Varga, S., Litherland, S., Byrne, J. and Corkhill, C.	Underpinning Laboratory-Based High-Level Waste Glass Dissolution Tests

Session 4: Minerals for a Sustainable Environment

Correia, L. T., Azevedo, A. C., Secco, A.V., Dickinson, H. and MacDonald, J.M.	Phyllosilicate Interlayer Engineering (PIE) for sustainable potassium supply from clay mine waste in Brazilian sandy soils
MacDonald, J.M., Owen, A., Brown, D.J. and Gribble, L.	Mineralogical Changes in Anthropogenic Sediments: Implications for a Sustainable Environment
Oskierski H.C., McCutcheon J., Deditius A., Suvorova A., D'Olivio J.P., Southam G.	CO_2 mineralisation in hydrated Mg-silicate microbialites
Skelton, H., Rees, M., Josue, J., Farrell, N., Bigaroni, N., Mecklenburgh, J. and Paul, L.	Mineralogical and microstructural controls on the mechanical behaviour of reservoir sandstones reacted with CO_2-enriched fluids

Session 5: Engineered minerals for existing and emerging technologies

Harvey, P., Egan Morriss, C., Hu, Min, Cavet, J., Coker, V., Gallego Schmid, A., Haigh, S., Hardacre, C. and Lloyd, J.R.	Biotechnological synthesis of nanocatalysts from industrial wastewaters
Rehmanji, M., Stigliano, L. and Cosmidis, J.	A high-throughput, data-driven workflow to tune carbonate (bio)mineral formation in abiotic and biotic systems
Xie, J., Byrd, N., Bueno, A., Coker, V.S., Sankar, M., Cai, R., Haigh, S.J., Lloyd, J.R.	Biorecovery of gold nanoparticles from industrial wastewaters by *Shewanella oneidensis*
Sriwastava, P., Seaman, A., Bola, J., Khare, S., Cosmidis, J., Tosca, N. and Anderson, R.	Protein-Templated Polymorph Selection: Engineering Mineral Crystallisation with de novo Designed Proteins

Session 6: Critical Minerals and Energy Transition

Bryce, A., Burnside, N., Dobson, K. and Currie, D.	Critical raw material and weathering potential of mine waste in the Leadhills-Wanlockhead Orefield
Eygi, A., Skellern, A., Farrell, N., Pawley, A., Bigaroni, N., Mecklenburgh, J., Paul, L. and Waters, J.	Mineralogical and microstructural controls on pore networks in lithium-bearing granites
Holtstam, D., Taddei, A., Förster, H.-J. and Appelt, O.	A quest for the "holy grail" of rare earth discovery: potential original material of gadolinite-(Y) from Ytterby
Dybowska, A., Hubau, A., Schofield, P.. Gianolo, D., Santos, A., Pino-Herrera, D., Hafida, T., Erard, M., Herrington, R.J., Joulian, C. and Guezennec, A.-G.	Optimised physical upgrading of lateritic mine waste to enhance bioprocessing for cobalt recovery

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Sutton, B.T.C., Shail, R.K., Gleeson, P., Broom-Fendley, S., Andersen, J.C.Ø., Roberts, N.M.W. and Tapster, S.	The Geological Controls and Mineral Parageneses of the Gunheath Lithium Deposit, St Austell, Cornwall
Zhang Y.H., Rajagoaplan A., Shaw S. and Shang J.L.	Silica Precipitation Occurs Under Low-temperature Alkaline Conditions
Cundell, M., Andersen, J. C. Ø., Broom-Fendley, S., Thorne, R. and Lambert-Smith, J.	A reclassification of the Kit Hill granite and the mineralisation impact on the Redmoor deposit, Cornwall

Session 7: Evolving Mineralogy of the Earth System: Interactions within the Crust, Mantle and Core

Lu, L. and Wheeler, J.	Grain-scale simulations of olivine phase transitions under stress: Insights from a phase-field model and implications for mantle discontinuities

Session 8: Crystal records of volcanic, magmatic and mineralisation processes

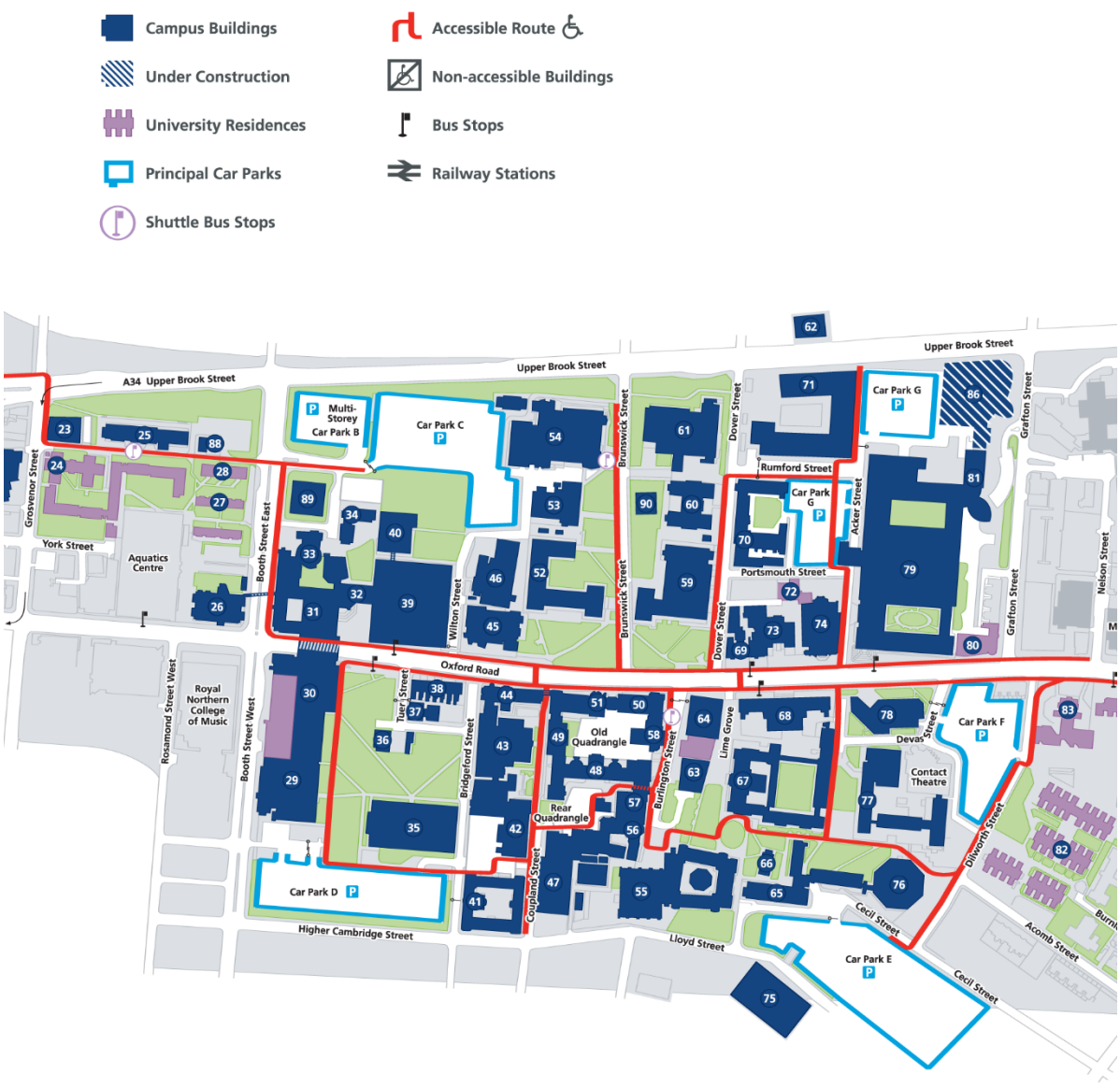
Bradshaw, S.J., Gertisser, R. and Goto, Y.	Quantifying Dome Formation at Showa-Shinzan, Mount Usu (Hokkaido, Japan) Using Crystal Size Distribution Analysis
Haines, F.M., Andronico D., Hughes E.C., Stanley, M. and Thomson A.R.	Timescales of pre-eruptive processes before the 23rd November 2013 paroxysmal explosive eruption at Etna using olivine diffusion chronometry
Hollis, S.P., Mongeau, P., Roberts, N., Cooper, M.R., Grant, H., McFall, K., Zagorevski, A., Sparkes, G.W., Tapster, S., Condon, D.J. and Piercey, S.J.	Controls on metal endowment in volcanogenic massive sulphide (VMS) deposits of the Caledonian-Appalachian orogen
Keeley, N., Gertisser, R., Petrone, C. M., Druitt, T., Kutterolf, S., Ronge, T. and the Expedition 398 Scientists	Petrological insights into the magma system of Santorini volcano (Greece) after the caldera-forming Late Bronze Age eruption
MacRae, C., De Hoog, J.C.M., Talavera, C. and Jollands, M.	Developing an H-in-zircon magmatic water proxy using apatite inclusions
Pierce-Jones, T., Hartley, M.E., Namur, O., Vander Auwera, J. and Neave D.A.	Variations in the crystal content of basalts from the Eastern Volcanic Zone of Iceland
Shareef, A.M., Ghosh, S., Sarkar, S., Malviyac, V.P., Arima, M. and Mandal, S.K.	Mantle Source Heterogeneity and Phlogopite-Rich Lithospheric Mantle Contribution to Early Cretaceous Ultrapotassic Magmatism in the Damodar Valley, Eastern India
Spring, B., Gertisser, R. and Karátson, D.	A textural perspective on the eruptive behaviour of Ciomadul volcano, East Carpathians, Romania
Turanski, M., Hollis, S., Diers, S., Dana, C., Fitton, G., Tavazzani, L., Chelle-Michou, C., Glorie, S. and Morey, B.	Constraining the age, geology, geochemistry, and VMS prospectivity of the Tallering Greenstone Belt, Yilgarn Craton, Western Australia

Session 9: Metamorphism and Fluid-Melt-Rock interactions within the lithosphere

Green, H.R., Carter, E.J., Stimpson, I.G., Tartèse, R., Osborne, W. and Savov, I.	Volatile Behaviour During Serpentinisation at Atlantis Massif: Insights from Halogens and Petrology
Nash, I.J., Hollis, S.P., Hastie, A.R., Smithies, R.H., Verbeeten, A., Holder, D. and Stock, E.	Origin of sanukitoid magmas linked to Archaean intrusion-related Au deposits: Insights from the Yilgarn Craton, Australia

Session 10: Advances in Mineralogical Analysis – Development of Techniques for 21st Century Research

De Hoog, J.C.M.[1], Talavera, C.[1], Barosch J.P. [1] and EIMF	The NERC Ion Microprobe Facility: SIMS analyses to support Earth Science and Mineralogy research
Hao, J., Ma, L. and Taylor, K.G.	Applying cutting-edge facilities to investigate mineral-fluid interactions
Heinen, B.J. and Byrne J.M.	Advancing Iron Mineral Characterisation in Geoscience with MinSight: A User-Friendly Web App for Mössbauer Spectroscopy
Collings, I.E., Tidey, J.P., Rumsey, M.S., Missen, O.P., Cortes Calderon, A., Najorka, J., Palatinus, L. and Mills, S.J.	Resolving structures in fine-grained mineral samples using 3D electron diffraction



54 – Schuster Building

50 – Whitworth Hall (Banquet)

MANCHESTER 1824
The University of Manchester
Conferences and Venues

Mineralogical Society of the UK and Ireland
150 years 1876–2026

Schuster Building

Schuster Building - Ground Floor Foyers

Foyer Area
6 x 2m x 2m stands
Registration
2 x catering stations

GA.03
4 x stands for special interest groups
10 x Signal sided poster boards
25 x Double sided poster boards
(60 x poster in total)

G floor

Lift
Toilets
Power Point
WiFi
Fire Call Point
Refuge Call Point

Scale
□ = 1m
1cm = 3m
when printed at A4

Presenter Instructions

Oral Presenters

1. Presentations will be from a Conference Windows laptop computer. (**It will not be possible to use your own computer**.)
2. Prepare your presentation using MS Powerpoint (or submit in .pdf) using slide size 16:9 format).
3. At the beginning of the morning (8.00 am) or afternoon (1.00 pm) in which you will be presenting, bring your presentations on a USB stick to be loaded on the Windows machine.
4. During your presentation, you will be provided with a lapel mic so the in-person and remote audience will be able to hear you. When speaking please stand at the lectern so that remote delegates can see you as you present.

Remote Presenters

1. Check the program for your presentation time (note all presentation times are given in local [Manchester] time, UTC + 1 hour).
2. Please join the session remotely at least 20 min prior to your presentation. Check the conference zoom links for details of how to join the session in which you will be presenting.
3. Be prepared to share your screen as soon as you are introduced (Important: don't share your screen prior to being introduced – you will interrupt the previous speaker).
4. Use your mouse as your pointer. Be sure your mouse cursor is large enough to see when projected.
5. Make sure your microphone is working well and not muffled. An external microphone that is near your mouth is better than the built-in microphone of the computer.

Poster instructions

There is one poster session for our conference this year. Posters must be **A0 portrait** in size/orientation. Presenters are welcome to put up their posters, using velcro provided by the conference (not pins), anytime after the conference begins on Tuesday morning at 08.40. They should be removed at the end of the coffee break on Thursday afternoon. Boards will be labelled so please check/ensure that you are using the right board!

Student Prizes

Prizes will be awarded for the best student oral and poster presentations (two in each category). All delegates are asked to assess the work presented using the form you can find here.

Scan this code for a form to assess student presentations

You can also find a link at
https://minsoc-150.org/student-presentations/

Guidelines for Poster Flash Presentations - 30-second Introductions

To help attendees navigate the poster session, each presenter will give a 30-second verbal overview of their poster on Day 2 at 2:30 pm in the Rutherford Lecture Theatre. These "Flash Presentations" are brief, spoken summaries — no slides or visual aids.

Purpose

- Your goal is to:
- Tell the audience what your poster is about
- Explain why it matters
- Encourage people to come and talk to you during the poster session

Time Limit

- You have 30 seconds maximum
- This is roughly 3–5 sentences or 60–75 words

Suggested Structure

A simple structure that works well:

1. Start with your name and affiliation
   "I'm Alex Smith from the University of Manchester."
2. State the topic or question
   "My poster looks at how trace elements records in metamorphic rocks."
3. Give one key finding or idea
   "We show that zircon inclusions preserve pressure–temperature paths more reliably than previously thought."
4. End with an invitation
   "If you're interested in metamorphic processes or microanalysis, please come and chat."

Tips for a Strong Introduction

Keep it simple — avoid technical detail that needs a figure to explain.

- Focus on the big picture — what's the take-home message.
- Speak clearly and at a steady pace — rushing makes it harder to follow.

What Not to Do

- Don't try to summarise your entire poster.
- Don't exceed the time limit; we have ~40 posters to get through.