The Joint 28th AIRAPT and 60th EHPRG International Conference 2023

Programme

Thursday 27 July 2023

Time	Room	Programme
8:30am to 9am	Lennox	Arrival Refreshments
9am to 9:50am	Lennox	**Plenary III Peter Celliers**: Inertial Confinement Fusion and High Pressure Science on the National Ignition Facility
9:50am to 10:15am	Lennox	Morning Break
10:15am to 12:15pm	Lennox	**Novel Superconductors 1** (Session Chair: Wenge Yang) **10:15am - 10:45am Jinlong Zhu**: Pressure Tuned 2D Superconductivity in Black Phosphorus **10:45am - 11:00am Daniel Braithwaite**: Probing the unusual superconductivity of UTe2 with high pressure **11:00am - 11:15am Yehezkel Amiel**: Superconductivity in multiple phases of compressed AuAgTe4 **11:15am - 11:30am Swee K. Goh**: Probing the Superconducting Gap of a Kagome Metal in a Diamond Anvil Cell via Self-field Critical Current **11:30am - 11:45am Yoshihiko Takano**: Discovery of new superconductor Sn3S4 by Original Diamond Anvil Cell using boron doped diamond electrode **11:45am - 12:00pm Kai Ham Yu**: Field angle dependent magnetotransport properties of CrAs
	Lowther	**Phase Diagrams – Metals** (Session Chair: Matt Lane) **10:15am - 10:45am Raymond Smith**: Measurement of high-pressure crystal structure and the pressure-temperature melt conditions in shock-compressed silicon carbide **10:45am - 11:00am Shailesh Mehta**: Calculation of metallic melt curves via the ab initio Z method **11:00am - 11:15am Pascal Thomas Salzbrenner**: Heavy Metals under Pressure and the Effect of Spin-Orbit Coupling **11:15am - 11:30am Travis Volz**: Effects of impurities and stacking fault energy on shock-induced phase changes in copper alloys **11:30am - 11:45am Guy Makov**: Pressure dependence of alloy solution phase diagrams: Experiments and thermodynamic modelling
	Menteith	**Phase Diagrams - Molecular Systems 2** (Session Chair: Ronald Redmer) **10:15am - 10:45am Takeshi Nakagawa**: Hydrocarbons under high pressure: Full-color luminescence by altering molecular packing **10:45am - 11:15am Umbertoluca Ranieri**: Crossover from “gas-like” to “liquid-like” molecular diffusion in a simple supercritical fluid **11:15am - 11:30am Ewa Patyk-Kaźmierczak**: Proton transfer reaction in 4,4’-bipyridine malonic acid cocrystal under pressure **11:30am - 11:45am Kazuhiro Fuchizaki**: Probable origin of pressure-induced solid-state amorphization of SnI4 **11:45am - 12:00pm Miriam Pena-Alvarez**: Revised Phase Diagram of Methane **12:00pm - 12:15pm** Jinwei Yan: Kinetic behaviour of Molecular Nitrogen

	Lammermuir	**Instrumentation and Techniques 2** (Session Chair: Konstantin Kamenev) **10:15am - 10:45am Xiao-Di Liu**: Magnetic detection under high pressures using designed silicon vacancy centres in silicon carbide **10:45am - 11:00am Kin On Ho**: Quantum sensing using the nitrogen vacancy (NV) center under high pressure **11:00am - 11:15am Sasanka Munasinghe**: Modulation technique for investigation of superconductivity by magnetic susceptibility **11:15 am - 11:30 am Jean-Francois Roch**: Quantum diamond magnetometry for high-pressure sensing **11:30 am - 11:45 am Fernando Rodriguez**: A large-volume high-pressure diamond anvil cell working under a magnetic field (BENMACON)
	Moffat	**Perovskites** (Session Chair: Catalin Popescu) **10:15am - 10:45am Kunlang Ji**: Double Double to Double Perovskite Transformations in Quaternary Manganese Oxides **10:45am - 11:15am Tingting Yin**: Distinct High-Pressure Responses of Halide Perovskites from Bulk to Low Dimension **11:15am - 11:30am Jerome Rouquette**: Antiferroelectric Pnma phase: The Missing Element to understand Morphotropic Phase Boundary lead-free Na1/2Bi1/2TiO3 based piezoceramics **11:30am - 11:45am Jianfa Zhao**: Displacive Ferroelectricity Realized in a New A-site-ordered Quadruple Perovskite Synthesized at High Pressure
12:15pm to 2pm	Lennox	Lunch
2pm to 4pm	Lennox	**Mantles of Terrestrial Planets** (Session Chair: Yanbin Wang) **2:00pm - 2:30pm Carmen Sanchez-Valle**: Tracking microstructures across phase transition in subducted basalt to illuminate the origin of seismic heterogeneities in the Earth's mid-mantle **2:30pm - 2:45pm Dmitry Bondar**: Speciation and effects of water on hydrous peridotitic glasses: insights into the early evolution of rocky planets **2:45pm - 3:00pm Amrita Chakraborti**: Effect of surface tension on the ferropericlase morphology of the Earth's lower mantle **3:00pm - 3:15pm Anirudh Hari**: In situ X-ray diffraction of Al2O3 during laser compression and release **3:15pm - 3:30pm Frederic Bejina**: Acoustic wave velocities in Mars' mantle minerals **3:30pm - 3:45pm Andrew Thomson**: The phase transitions of CaSiO3 perovskite at extreme conditions **3:45pm - 4:00pm Tianqi Xie**: High-pressure high-temperature study of plagioclase feldspar: implications for shock metamorphism
	Lowther	**Phase Diagrams - Molecular Systems 1** (Session Chair: Miriam Perez Alvarez) **2:00pm - 2:30pm Bingqing Cheng:** Predicting the phase behaviors of high-pressure materials **2:30pm - 3:00pm Kamil Dziubek**: What is a phase diagram? **3:00pm - 3:15pm Ronald Redmer**: Nonmetal-to-metal transition in dense fluid nitrogen at high pressure **3:15pm - 3:30pm Loïc Toraille**: New studies on high pressure methane and ethane up to 150 GPa **3:30pm - 3:45pm Bernhard Massani**: A case study for X-ray imaging at high pressure and temperature **3:45pm - 4:00pm John Proctor**: Neutron scattering, Raman scattering and molecular dynamics simulation study of supercritical fluid nitrogen

	Menteith	**Equation of State 2** (Session Chair: Ray Smith) **2:00pm - 2:30pm Leonid Burakovsky**: Analytic model of principal hugoniot in a wide pressure range **2:30pm – 2:45pm Konstantin V. Khishchenko**: Equation of state for molybdenum at high pressures and temperatures in shock waves **2:45pm – 3:00pm Andrew Krygier**: Extended X-ray Absorption Fine Structure (EXAFS) measurements in ramp compressed tantalum at the National Ignition Facility **3:00pm – 3:15pm Daniel Campbell**: A Refined EOS of bcc Bi in a Soft Pressure Medium up to 260 GPa **3:15pm – 3:30pm Li Lei**: The Concept of Generalized Pressure
	Lammermuir	**Facility Development 2** (Session Chair: Emma McBride) **2:00pm - 2:30pm Rostislav Hrubiak**: Correlating Atomic Structure and Macroscopic Properties at High Pressures and Temperatures through a Large Volume Press Program at HPCAT **2:30pm - 3:00pm Sébastien Merkel**: Multigrain X-ray Diffraction for the Study of Deformation and Phase Transformation Microstructures at Deep Mantle Pressures and Temperatures **3:00pm - 3:15pm Wilson Crichton**: Exploring phase diagrams, structures and properties at high resolution at ID06-LVP **3:15pm - 3:30pm Robert Farla**: In situ, high-pressure experiments using synchrotron white x-rays at the Large Volume Press end-station P61B, PETRA III, DESY **3:30pm - 3:45pm Andrew King**: Developments at PSICHE, Synchrotron SOLEIL, for science at extreme conditions
	Moffat	**Novel Superconductors 2** (Session Chair: Jinglong Zhou) **2:00pm - 2:30pm Wenge Yang**: Pressure driving novel superconductivity in chalcogenides **2:30pm - 2:45pm Rustem Khasanov**: Unsplit superconducting and time reversal symmetry breaking transitions in Sr_2RuO_4 under hydrostatic pressure and disorder **2:45pm - 3:00pm Pierre Toulemonde**: HP-HT hydrogenation of LaFeSi by decomposition of anthracene or borazane and study of the P,T phase diagram of the superconductor LaFeSiO1-δ **3:00pm - 3:15pm Mads Fonager Hansen**: Superconductivity in carbon-boron clathrates **3:15pm - 3:30pm Wenyan Wang**: Quantum oscillation and superconductivity study of the layered Weyl semimetal WTe2 under pressure
4pm to 5:30pm	Lennox	**Poster Session 2 and Refreshments**
5:30pm to 8:30pm	Lennox	**AIRAPT General Assembly**