



# International Core-to-Core Symposium on Mixed-Anion Compounds 2024

Meeting Schedule (ver. 09/03/2024)

## Day 1: Monday, March 11, 2024

Time	Event	Venue
13:15 - 14:00	Arrival and check-in	Entrance Hall IMN
14:00 - 14:10	Welcome message Laurent CARIO & Hiroshi KAGEYAMA	Amphitheatre IMN
<b>Session 1 - Mixed anion halides</b> (Chair: Hiroshi KAGEYAMA)		
14:10 - 14:30	<b>O1-1: Alain DEMOURGUES</b> (ICMCB, CNRS) Unveiling the Mg <sup>2+</sup> structural defects and anionic disorder in MgOHF hydroxide fluoride obtained by hydrothermal routes	Amphitheatre IMN
14:30 - 14:50	<b>O1-2: Olivier MENTRE</b> (UCCS, CNRS-Univ Lille) Structural potentialities at the crosslink between several 2D series with mixed O,F anions	
14:50 - 15:10	<b>O1-3: Batoul ALMOUSSAWI*</b> (Rosseinsky group, University of Liverpool) The original polyanionic pyramidal coordination of iron: new oxychloride and its selenide-based derivative	
15:10 - 15:30	<b>O1-4: Jonas WOLBER*</b> (UCCS, University of Lille) Modification of the anionic sublattice of mixed Aurivillius oxyfluoride crystals	
15:30 - 16:10	Coffee break	Entrance Hall IMN
<b>Session 2 - Mixed anion chalcogenides</b> (Chair: Houria KABBOUR)		
16:10 - 16:30	<b>O2-1: Alexis GILLETTE*</b> (Inorganic chemistry laboratory, University of Oxford) Structure and magnetism of the novel mixed valent iron oxysulphide Sr <sub>3</sub> Fe <sub>2</sub> O <sub>5</sub> Fe <sub>2</sub> OS <sub>2</sub>	Amphitheatre IMN
16:30 - 16:50	<b>O2-2: Robert SMYTH*</b> (Inorganic chemistry laboratory, University of Oxford) Soft chemistry of cobalt-containing oxide chalcogenides	
16:50 - 17:10	<b>O2-3: Souvik GIRI*</b> (Inorganic chemistry laboratory, University of Oxford) Sr <sub>2</sub> MnO <sub>2</sub> Na <sub>1.7</sub> Se <sub>2</sub> : a metamagnetic oxychalcogenide compound synthesized by soft chemical reactions	
17:10 - 17:30	<b>O2-3: Shunsuke SASAKI</b> (IMN, CNRS) Understanding intercalation vs. conversion in topochemistry of mixed-anion polychalcogenides	
17:30 - 18:30	Poster session	Entrance Hall IMN
19:30 -	Dinner (See the page ' <a href="#">practical information</a> ' for details)	<a href="#">Crêperie Saint-Croix</a>

**Day 2: Tuesday, March 12, 2024**

Time	Event	Venue
<b>Session 3 - Polyanionic compounds</b> (Chair: Franck TESSIER)		
09:00 - 9:20	<b>O3-1: Ryo OHTANI</b> (Kyusyu University) New dimension of cyanido-based solid state materials consisting of dynamic structures	Amphitheatre IMN
09:20 - 9:40	<b>O3-2: Yosuke MATSUZAKI*</b> (Kageyama Laboratory, Kyoto University) Synthesis, Structure and Electrochemical Property of New Fluorothiocyanate	
09:40 - 10:00	<b>O3-3: Jacob OLCHOWKA</b> (ICMCB, CNRS) Ionothermal Synthesis of Polyanionic Electrode Material $\text{Na}_3\text{V}_2(\text{PO}_4)_2\text{FO}_2$ through a Topotactic Reaction	
10:00 - 10:20	<b>O3-4: Gaël MINART*</b> (ICMCB, CNRS) Tunable Polyanionic Electrode Material for Na-ion Batteries Obtained by Ionothermal Synthesis	
10:20 - 11:00	Coffee break	Entrance Hall IMN
<b>Session 4 - Functional mixed anion compounds</b> (Chair: Stéphane Jobic)		
11:00 - 11:20	<b>O4-1: Kazuhiko MAEDA</b> (Tokyo Institute of Technology) Artificial photosynthesis using mixed-anion materials and beyond	Amphitheatre IMN
11:20 - 11:40	<b>O4-2: Kantaro MURAYAMA*</b> (Kageyama Laboratory, Kyoto University) Polar-nonpolar transition in metal and insulator	
11:40 - 12:00	<b>O4-3: Vincent PELLETIER*</b> (ISCR, CNRS-ENSCR) Improving very high temperature thermoelectric performance of $\text{Yb}_4\text{Sb}_3$ through dual-substitutions: a theoretical study	
12:00 - 14:00	Lunch / Poster session	Entrance Hall IMN
<b>Session 5 - Mixed anion hydrides</b> (Chair: Olivier HERNANDEZ)		
14:00 - 14:20	<b>O5-1: Michael HAYWARD</b> (Inorganic chemistry laboratory, University of Oxford) Competition between vacant oxides and oxyhydrides during the reduction of $\text{LaSrCoRuO}_6$	Amphitheatre IMN
14:20 - 14:40	<b>O5-2: Yuki SASAHARA*</b> (Kageyama Laboratory, Kyoto University) Mechanochemical Synthesis of Oxyhydrides	
14:40 - 15:00	<b>O5-3: James MURRELL*</b> (Inorganic chemistry laboratory, University of Oxford) Synthesis of oxyhydrides from the $n=1$ Ruddlesden-Popper phase, $\text{Sr}_4\text{MnIrO}_8$	
15:00 - 15:20	<b>O5-4: Genki KOBAYASHI</b> (Solid State Chemistry Laboratory, RIKEN)	

	Electropositive Metal Doping into Lanthanum Hydride for Hydride ion Conducting Solid Electrolyte Use at Room Temperature	
15:20 - 16:00	Coffee break	Entrance Hall IMN
<b>Session 6 - Functional mixed anion compounds II</b> (Chair: Cédric TASSEL)		
16:00 - 16:20	<b>O6-1: Romain WERNERT*</b> (Inorganic chemistry laboratory, University of Oxford) Synthesis of new mixed anion compounds through successive topochemical fluorination and reduction	Amphitheatre IMN
16:20 - 16:40	<b>O6-2: Katherine STEELE*</b> (Inorganic chemistry laboratory, University of Oxford) The effects of alkali metal intercalation on the structure and superconductivity of Niobium Selenide	
16:40 - 17:00	<b>O6-3: Helies HYDRONDELLE-BOUMALI*</b> (ICMCB, CNRS) Tuning the OH/F ratio and chemical bonds in 3d Transition-metal hydroxyfluorides : Correlation between structural features and physical properties	
17:00 - 19:30	Free time	
19:30 -	Gala dinner (See the page <a href="#">‘practical information’</a> for details)	French restaurant <a href="#">A Cantina</a>

### **Day 3: Wednesday, March 13, 2024**

Time	Event	Venue
<b>Session 7 - Mixed anion nitrides</b> (Chair: Simon CLARKE)		
09:30 - 9:50	<b>O7-1: Zefeng WEI*</b> (Kageyama Laboratory, Kyoto University) Lanthanum Nitride-Hydride $\text{La}_2\text{H}_3\text{N}$ with Anion Layered Ordering	Amphitheatre IMN
09:50 - 10:10	<b>O7-2: Rafael BIANCHINI-NUERNBERG*</b> (ICMCB, CNRS) Energetics of ionic transport on LiPON amorphous electrolytes	
10:10 - 10:30	<b>O7-3: Tatsuya TSUMORI*</b> (Kageyama Laboratory, Kyoto University) Synthesis of new oxynitride with $[\text{CrN}_3]$ trigonal planar coordination	
10:30 - 11:10	Coffee break	Entrance Hall IMN
<b>Session 8 – Mixed anion halides II</b> (Chair: Laurence CROGUENNEC)		
11:10 - 11:30	<b>O8-1: Angel AREVALO-LOPEZ</b> (UCCS, CNRS) New mixed anion compounds with 2D magnetic lattices	Amphitheatre IMN
11:30 - 11:50	<b>O8-2: Hajime SUZUKI</b> (Abe Laboratory, Kyoto University) Layered oxyhalide photocatalysts for water splitting under visible light	
11:50 - 12:10	<b>O8-3: Marie GUIGNARD</b> (ICMCB, CNRS) Exploring oxy-fluoride compounds with a cation-disordered rock-salt structure for lithium-ion battery applications	
12:10 - 12:20	Awarding prizes	Amphitheatre IMN

12:20 - 12:30	Closing remarks Laurent CARIO & Hiroshi KAGEYAMA	Amphitheatre IMN
12:30 -	Lunch (takeout meal)	Entrance Hall IMN

\* Participants registered as 'Student, postdoc'

## **Poster presentations**

Day 1 (11/3 Monday) 17:30-18:30 & Day 2 (12/3 Tuesday) 12:00-14:00

Discussions are open all hours!!

<b>Speaker</b>	<b>Presentation title</b>
<b>P1: Guillaume GOUGET</b> (ISCR, CNRS)	A story of chalcogenide metal clusters
<b>P2: Paul DAVIS*</b> (Inorganic Chemistry Laboratory, University of Oxford)	Crystal Structure Determination of Novel Topochemically Reduced Niobium and Tantalum Oxides Utilising Neutron and X-Ray Powder Diffraction
<b>P3: Makoto OGAWA*</b> (Abe Laboratory, Kyoto University)	Flux-Assisted Synthesis of Layered Perovskite Oxyiodide Photocatalyst for Improved Water Splitting under Visible Light
<b>P4: Harutaka NINOMIYA*</b> (Abe Laboratory, Kyoto University)	Boosting Z-scheme Water Splitting by Controlling Fe <sup>III</sup> /Fe <sup>II</sup> Redox Potential in Metal Hexacyanoferrate Modifiers Loaded on H <sub>2</sub> -evolving Photocatalyst
<b>P5: Yu MENG*</b> (Quantum Solid State Materials Group, NIMS)	New chloride-ion conductor Ca <sub>2</sub> B <sub>5</sub> O <sub>9</sub> Cl with a 3D open borate framework
<b>P6: Riju DEY*</b> (Inorganic Chemistry Laboratory, University of Oxford)	To be confirmed
<b>P7: Nachi UENO*</b> (Yashima Laboratory, Tokyo Institute of Technology)	High Oxide-ion Conduction and Crystal Structure of Sillén Oxychlorides
<b>P8: Yang YANG*</b> (Kageyama Laboratory, Kyoto University)	High-Pressure Synthesis and Order-Disorder Transition of Layered Oxytelluride Ba <sub>2</sub> ZnO <sub>2</sub> Ag <sub>2</sub> Te <sub>2</sub>
<b>P9: Antoine LE GENDRE*</b> (ISCR, Université de Rennes)	Octahedral Metal-Cluster building blocks for solar cell applications
<b>P10: Hiroshi YAGUCHI*</b> (Solid State Chemistry Laboratory, RIKEN)	High Temperature Phase Stabilization and Hydride Conductivity of Ba-Li based Oxyhydride
<b>P11: Lemuel CRENTSIL*</b> (Inorganic Chemistry Laboratory, University of Oxford)	To be confirmed
<b>P12: José Luis ROSAS HUERTA*</b> (USSC, Université de Lille)	Magnetism and crystal structure in synthetic crichtonites
<b>P13: Hugo BOUTEILLER*</b> (PPRIME Institute, University of Poitiers)	Unconventional synthesis and characterization of substituted rare-earth antimonides for very high temperature thermoelectric applications

<b>P14: Guillaume DUBOIS*</b> (ISCR, Université de Rennes)	Soft pathway for molybdenum carbide and nitride syntheses: Application to the Hydrogen Evolution Reaction (HER)
<b>P15: Divyesh PARMAR*</b> (IMN, Nantes University)	Optimization of thermoelectric properties of layered chalcogenide materials
<b>P16: Yasuto NODA</b> (Molecular Chemical Physics Group, Kyoto University)	<sup>14</sup> N NMR of magnetically oriented microcrystals

\* Participants registered as 'Student, postdoc'

## ***Participant list***

64 participants, including 18 from Japan, 12 from UK and 34 from France.

<b>Name</b>	<b>Affiliation</b>
<b>Alain DEMOURGUES</b>	ICMCB, CNRS
<b>Alexis GILLETTE</b>	Inorganic Chemistry Laboratory, University of Oxford
<b>Angel AREVALO-LOPEZ</b>	UCCS, CNRS
<b>Antoine LE GENDRE</b>	ISCR, Université de Rennes
<b>Batoul ALMOUSSAWI</b>	Rosseinsky group, University of Liverpool
<b>Cédric TASSEL</b>	Kyoto University
<b>David BERTHEBAUD</b>	IMN, CNRS
<b>Divyesh PARMAR</b>	IMN, Nantes University
<b>Enora FRAPPÉ</b>	Conseillère technique Ouest France, Fritsch GmbH
<b>Florent PAWULA</b>	IMN, Nantes University
<b>Franck TESSIER</b>	ISCR, CNRS
<b>Gaël MINART</b>	ICMCB, CNRS
<b>Genki KOBAYASHI</b>	Solid State Chemistry Laboratory, RIKEN
<b>Guillaume DUBOIS</b>	ISCR, Université de Rennes
<b>Guillaume GOUGET</b>	ISCR, CNRS
<b>Hajar ECHATE</b>	IMN, CNRS
<b>Hajime SUZUKI</b>	Abe Laboratory, Kyoto University
<b>Harutaka NINOMIYA</b>	Abe Laboratory, Kyoto University
<b>Helies HYDRONDELLE-BOUMALI</b>	ICMCB, CNRS
<b>Hiroshi KAGEYAMA</b>	Kageyama Laboratory, Kyoto University
<b>Hiroshi YAGUCHI</b>	Solid State Chemistry Laboratory, RIKEN
<b>Houria KABBOUR</b>	IMN, CNRS
<b>HOURIA KABBOUR</b>	IMN, CNRS
<b>Hugo BOUTEILLER</b>	PPRIME Institute, University of Poitiers
<b>Jacob OLCHOWKA</b>	ICMCB, CNRS
<b>James MURRELL</b>	Inorganic Chemistry Laboratory, University of Oxford
<b>JEAN-FRANCOIS HALET</b>	ISCR, CNRS - Université de Rennes
<b>Jonas WOLBER</b>	UCCS, University of Lille
<b>José Luis ROSAS HUERTA</b>	USSC, Université de Lille
<b>Kantaro MURAYAMA</b>	Kageyama Laboratory, Kyoto University

<b>Katherine STEELE</b>	Inorganic Chemistry Laboratory, University of Oxford
<b>Kazuhiko MAEDA</b>	Tokyo Institute of Technology
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<b>Laurent CARIO</b>	IMN, Nantes Université, CNRS
<b>Lemuel CRENTSIL</b>	Inorganic Chemistry Laboratory, University of Oxford
<b>Makoto OGAWA</b>	Abe Laboratory, Kyoto University
<b>Maria Teresa CALDES</b>	IMN, CNRS
<b>Marie GUIGNARD</b>	ICMCB, CNRS
<b>Michael HAYWARD</b>	Inorganic Chemistry Laboratory, University of Oxford
<b>Nachi UENO</b>	Yashima Laboratory, Tokyo Institute of Technology
<b>Olivier HERNANDEZ</b>	IMN, Nantes University
<b>Olivier MENTRE</b>	UCCS, CNRS-Univ Lille
<b>Paul DAVIS</b>	Inorganic Chemistry Laboratory, University of Oxford
<b>Rafael BIANCHINI-NUERNBERG</b>	ICMCB, CNRS
<b>Regis GAUTIER</b>	ISCR, ENSC Rennes - Université de Rennes
<b>Riju DEY</b>	Inorganic Chemistry Laboratory, University of Oxford
<b>Robert SMYTH</b>	Inorganic Chemistry Laboratory, University of Oxford
<b>Romain WERNERT</b>	Inorganic Chemistry Laboratory, University of Oxford
<b>Ryo OHTANI</b>	Kyushu university
<b>Shunsuke SASAKI</b>	IMN, CNRS
<b>Simon CLARKE</b>	Inorganic Chemistry Laboratory, University of Oxford
<b>SOPHIE TENCE</b>	ICMCB, CNRS
<b>Souvik GIRI</b>	Inorganic Chemistry Laboratory, University of Oxford
<b>Stéphane JOBIC</b>	IMN, CNRS
<b>Tatsuya TSUMORI</b>	Kageyama Laboratory, Kyoto University
<b>Vincent PELLETIER</b>	ISCR, CNRS - ENSCR
<b>Yang YANG</b>	Kageyama Laboratory, Kyoto University
<b>Yasuto NODA</b>	Molecular Chemical Physics Group, Kyoto University
<b>Yosuke MATSUZAKI</b>	Kageyama Laboratory, Kyoto University
<b>Yu MENG</b>	Quantum Solid State Materials Group, NIMS
<b>Yuki SASAHARA</b>	Kageyama Laboratory, Kyoto University
<b>Justine CORDIEZ</b>	IMN, CNRS
<b>Etienne JANOD</b>	IMN, CNRS
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