

ASPIRE Kickoff Meeting

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From January 27 to 29, 2025, the 3rd International Core-to-Core Conference on Mixed Anion Research for Energy Conversion was held at the University of Lille, France, in collaboration with the JST ASPIRE mixed-anion project. This conference also served as the Kickoff Meeting for the ASPIRE project. The JSPS Core-to-Core Mixed Anion project, coordinated by Prof. Kageyama, commenced in April 2020, just after the start of the COVID-19 pandemic, and it ends March 2025. The Core-to-Core project includes researchers from Japan, primarily from Kyoto University, along with Tokyo Institute of Technology (now renamed Institute of Science Tokyo), Nagoya University, NIMS, and the Institute for Molecular Science. Internationally, it includes researchers from the following four key hubs and eight research institutions:

- United Kingdom: University of Oxford (Representative: Prof. Simon Clarke), ISIS
- Germany/China: RTWH Aachen University/Hoffmann Institute (Representative: Prof. Richard Dronskowski)
- Belgium: University of Antwerp (Representative: Prof. Joke Hadermann)
- France: University of Bordeaux (Representative: Prof. Alain Demourgues), University of Rennes, University of Nantes, University of Lille

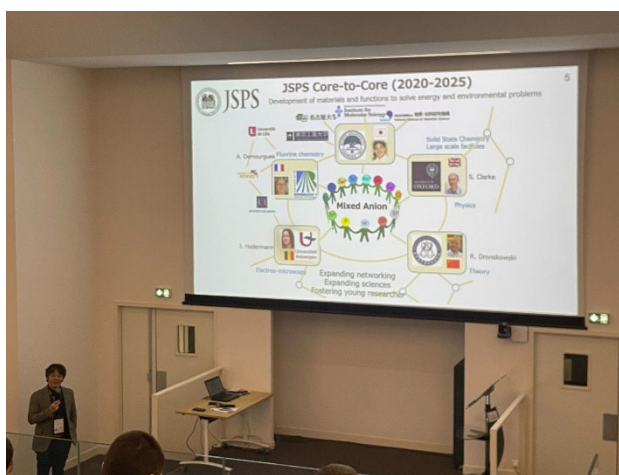
In contrast, the ASPIRE project has been structured as an expansion of the Core-to-Core project, maintaining its international network while further developing into four divisions: Synthesis 1, Synthesis 2, Structure, and Theory. The composition of these divisions is as follows:

- Synthesis 1: University of Oxford (PI: Prof. Michael Hayward)
- Synthesis 2: University of Nantes (PI: Dr. Laurent Cario), University of Bordeaux, University of Rennes, University of Lille
- Structure: University of Oxford (PI: Prof. Andrew Goodwin), ISIS, University of Antwerp

- Theory: University of Michigan (PI: Prof. Wenhao Sun), RTWH Aachen University

The conference was hosted by Dr. Olivier Mentré of the University of Lille and was attended by a total of 82 participants: 29 from Japan, 36 from France, 13 from the United Kingdom, and 2 each from Belgium, Germany, and the United States. Prof. Wenhao Sun's group and Prof. David Portehault of Sorbonne University participated with support from the ASPIRE project. The conference featured 34 oral presentations and 25 poster presentations.

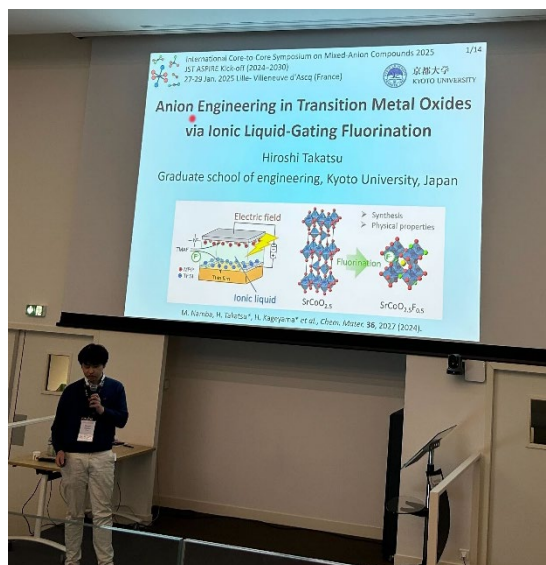
During the opening session, Prof. Kageyama, the coordinator of both projects, provided an overview of the transition from Core-to-Core to ASPIRE. Subsequently, the sessions consisted of four to five oral presentations, interspersed with coffee breaks, continuing until the morning of the third day. A poster session was held on the first evening, and discussions around the posters continued throughout the event during coffee breaks. At the closing session, Prof. Kageyama presented the Best Presentation Award to Ms. Hajar Echate and expressed gratitude to the organizers. Additionally, an announcement was made regarding



the 2nd International Symposium on Solid State Chemistry (ISSSC 2025), scheduled to be held in Izumo, Japan, in December 2025.

The oral presentations were divided into seven thematic sessions: High Pressure, Methods, Hydrides and More, Theory, Oxo-Fluorides, Electro-Photo Catalysis, Chalcogenides, and

Synthesis. These sessions facilitated active discussions among participants on a wide range of research topics related to mixed anions, including theoretical studies, material synthesis, characterization techniques, and applications. The oral presenters included 16 senior researchers, 4 postdoctoral researchers, and 14 students. Students actively engaged in discussions, asking numerous questions. During coffee breaks, discussions took place freely across ranks, nationalities, and affiliations, with additional in-depth debates following each presentation. The conference also facilitated discussions on collaborations within the ASPIRE project. For instance, Sasahara's research received valuable insights on theoretical approaches to local reactions, potential target materials, and catalytic reaction perspectives. Young researchers engaged in deep discussions beyond the formal Q&A sessions, fostering future collaborations among the next generation of scientists.



Beyond the breadth of topics covered, the conference encapsulated all aspects of mixed-anion research, from high-level perspectives provided by senior researchers to cutting-edge developments led by young scientists. For young researchers entering this field, the conference served as an invaluable opportunity.

Furthermore, discussions on international student exchanges were held. Several foreign students expressed interest in conducting research in Japan, leading to productive conversations about research environments and specific exchange plans. Likewise, Japanese participants gained direct insights into overseas laboratories, including the experimental equipment and the academic atmosphere of research groups. These exchanges underscored the unique benefits of in-person meetings.

This conference successfully facilitated the seamless transition from the 4.5-year Core-to-Core project to the 5-year ASPIRE project, ensuring continuity in their objectives. We sincerely appreciate the organizers for facilitating this meaningful event.

Due to COVID-19 restrictions in previous years, this was only the third in-person conference of its kind. The first meeting was held in March 2023 at the University of Oxford (host: Prof. Simon Clarke), followed by the second in March 2024 at the University of Nantes (host: Dr. Laurent Cario).

