化学科講演会のお知らせ

講演者：**Dr. Alain DEMOURGUES**
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日時：2026 年 11 月 25 日（水）13 時 30 分から 14 時 30 分頃まで
場所：南 7 号館 4 階セミナー室

Fluorine as a key element in solid state chemistry of mixed anions 3d-transition metal-based materials for electronic properties and energy

Abstract: Mixed anion compounds containing fluorine and based on 3d transition elements represent a class of materials with significant interest in solid-state chemistry. Indeed, their highly varied chemical composition, structural diversity, and the resulting electronic properties provide a rich playground for imagining new applications in the field of energy. The anions and the chemical bonds they form with the 3d transition elements are at the heart of this review. Oxyfluorides represent the most studied family due to the size similarity of the two anions, and part of the presentation is dedicated to the specific synthesis of these materials by systematically adjusting the fluorine content within various structures and analyzing the electronic and electrochemical properties of these compositions. The final part focus on materials with structures often exhibiting a two-dimensional character, where ionic blocks coexist with covalent layers, such as fluorochalcogenides, fluoropnictides, and fluorotetrelides. The compositions and structures are systematically correlated with the electronic properties.

1. Hyrondelle H., Terry A., Lhoste J., Tencé S., Lemoine K., Olchowka J., Dambournet D., Tassel C., Gamon J. and Demourgues A. Fluorine as a key element in solid-state chemistry of mixed anions 3d transition metal-based materials for electronic properties and energy. *Chem. Rev.* 2025, vol.125, No.8, .4287–4358. https://doi.org/10.1021/acs.chemrev.4c00868

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