SeMPowisko 2024



Contribution ID: 22

Type: Talk

X-ray magnetic circular dichroism spectroscopy as an advanced tool for studying magnetic materials

Friday 19 April 2024 10:40 (20 minutes)

Started by Michael Faraday in 1845, the studies on numerous magneto-optical phenomena, i.e. changes in the interactions between electromagnetic radiation and matter provoked by the presence of a magnetic field in a material, played a key role in understanding the quantum nature of light and matter. To this day, the implementation of research techniques deeply embedded in the relationship between magnetic field and light results in advancements and broadening the understanding in many key fields including astrophysics or electronics. Furthermore, X-ray magnetic circular dichroism (XMCD) is particularly useful in studying magnetic materials. It enables an unambiguous determination of the spin and orbital contributions to the magnetic moments of specific elements.[1] This capability proves particularly valua-ble in the field of molecular magnetic materials and photomagnets, which show promise as candidates in emerging advanced technologies such as magneto-optical ultra-high density data storage.

The presentation will introduce XMCD spectroscopy as a tool for studying magnetic materials and will cover its fundamentals as well as some specific applications.

Field

Chemistry

Length

Short 15 min

Author: DZIERŻEK, Dominik (Jagiellonian University Faculty of Chemistry)

Presenter: DZIERŻEK, Dominik (Jagiellonian University Faculty of Chemistry)