

SEMINAR ANNOUNCEMENT

國立中山大學物理系114學年度第1學期專題演講

Explore the characteristics of materials using soft X-ray spectroscopies

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Abstract:

Due to the characteristic binding energy unique to each element, X-ray absorption spectroscopy offers detailed insights into the individual constituents of various materials. Additionally, polarized X-rays can be utilized to detect the anisotropy in electron distribution, arising not only from lower local symmetries but also from magnetic interactions, such as X-ray linear dichroism (XLD). XLD proves highly effective in determining orbital occupations and energy levels. Furthermore, the presence of a spin moment distorts the electron cloud, enabling XLD to probe the alignment of magnetic moments, referred to as X-ray magnetic linear dichroism. On the other hand, X-ray magnetic circular dichroism (XMCD) is instrumental in identifying the magnetic contributions of various elements to the total magnetization, making it an invaluable tool for studying magnetic materials. Moreover, through the core-hole spin-orbit interaction, XMCD sum rules allow for the determination of each element's spin and orbital moments. Theoretical simulations can be employed to extract intricate details about the electronic structures of the studied compounds, enhancing our understanding of their properties. This presentation will showcase several examples that highlight the remarkable capabilities of X-ray absorption spectroscopy and its associated techniques.

VENUE

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TIME

25th Sep., Thu.

14:10