

NEXT - An international network for Nonlinear Extreme ultraviolet to hard X-ray Techniques

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Extreme Ultraviolet (EUV) table-top sources and soft to hard X-ray Free Electron lasers (XFELs) have opened a new era in science, providing ultrashort, coherent, and tunable pulses that are used to perform cutting-edge experiments in Atomic and Molecular physics, Condensed Matter Physics, Biology and Chemistry. However, most of the reported studies rely on linear light-matter interactions, which are fundamentally limited in the dynamical information they can provide. On contrary, nonlinear radiation-matter interactions have proven to be a powerful tool to unravel hitherto inaccessible properties.

The NEXT collaboration will capitalize on pioneering promising results, reported over the last decade, to create the first concerted experimental and theoretical effort aimed at implementing EUV/X-ray nonlinear spectroscopies at lab-based and large-scale facility short-wavelength sources, especially XFELs.

In this short presentation we would like to advertise this new initiative and the recently funded COST Action (CA22148), which will be located in Spain (IMDEA Nanoscience) and should become active in autumn 2023. We would like to particularly encourage the research groups in Spain and Portugal to consider joining the Action and contribute to this new endeavour.

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