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Report of Abstracts

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Applications of synchrotrons and X-ray free electron lasers

Abstract content

Status: These lectures aim at presenting the generation of radiation in third and fourth generation accelerators and their characteristics. I will then discuss the use of this type of radiation (synchrotron) that exploits its large spectral tunability going from the infrared to the X-rays for the characterization of condensed matter systems, molecules and biological systems. In the second part, I will focus on recent developments at synchrotrons and X-ray free electron lasers concerning time-resolved X-ray techniques, such as absorption, diffraction and photoelectron spectroscopy. These new tools allow probing in “real-time” the electronic structure changes and the geometric ones that are induced by photoabsorption from an initial triggering laser pulse. These studies are mostly carried out in the femtosecond to picosecond time domains and X-ray free electron lasers hold the promise of unravelling new physical phenomena.

Summary

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