Contribution ID: **199** Type: **not specified**

Synchrotron light circular machines & FELs I

Friday 4 October 2024 08:30 (1 hour)

Synchrotron light sources and X-ray free-electron laser (FEL) facilities are unique tools providing extremely brilliant X-rays that allow the observation of matter with atomic spatial resolution. On the one hand, synchrotron light sources consist of electron circular accelerators and produce synchrotron radiation in bending magnets and undulators. On the other hand, X-ray FEL facilities are based on electron linear accelerators and generate more coherent and shorter pulses suitable for time-resolved experiments. In these lectures we will qualitatively describe synchrotron and X-ray FEL facilities. We will start explaining some fundamental concepts related to synchrotron and FEL radiation. We will then describe the two kinds of machines, including the history and current facilities, the typical layout, and some basic concepts about the electron beam dynamics and properties.

Presenter: PRAT COSTA, Eduard