

**Characteristics and Properties of Synchrotron Radiation:
an introduction**

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Relativistic charged particles forced to move along curved trajectories by applied magnetic fields emit electromagnetic radiation with peculiar characteristics called Synchrotron Radiation; today electron storage rings are routinely used to provide such radiation to users for experimental studies in a wide spectral range from infrared to hard X-rays. In fact, thanks to its characteristics, synchrotron radiation is one of the more powerful tools for investigating the properties of matter in many different fields like molecular and atomic physics, cell biology, medical applications, nanotechnology, catalysis and cultural heritage. Up to now three generations of synchrotron radiation sources emitting radiation with increasing quality have been developed during the last twenty years and today the maximum possible quality is being achieved in the so called "ultimate storage rings". In addition fourth generation sources, based on free-electron lasers, already produces high power and ultrafast pulses of highly coherent radiation.

In the present contribution, the main characteristics and properties of the synchrotron radiation sources and of the produced radiation are introduced and explained using a simple approach.