

Sirius project and synchrotron light

Synchrotron Light, or Radiation, is a type of electromagnetic radiation that spans a wide range of the electromagnetic spectrum –from infrared light, to ultraviolet radiation and x-rays. Synchrotron light is produced when charged particles, accelerated to speeds approaching the speed of light, have their trajectory deflected by magnetic fields. The light we see –produced by the sun, by lamps or flames, reflected by objects, captured by our eyes and finally used by our brains to shape and color the world –corresponds only to a tiny fraction of the so-called electromagnetic waves. However, there are many electromagnetic waves, many types of light that we cannot see, but are produced in the most diverse natural and artificial phenomena. The study of these invisible waves leads not only to the understanding of the phenomena in which they are produced, but also to the development of technologies that use them, for example, to transmit and receive information.

Sirius, the new Brazilian Synchrotron Light Source, will be the largest and most complex scientific infrastructure ever built in the country and one of the first 4th-generation Synchrotron Light Sources in the World. It is planned to put Brazil in a leading position in the production of Synchrotron Light and is designed to be the brightest of all the equipment in its energy class. The first stage of the Sirius Project, the new synchrotron light source in Brazil, has just been inaugurated. Electrons were accelerated for the first time in the largest and most complex scientific facility ever built in the country, at the National Center for Research in Energy and Materials (CNPEM) in Campinas.

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