Studies of Accelrators Physics in Low Emittance Electron Storage Rings for Synchrotron Radiation.

Ryutaro NAGAOKA

(Groupe Physique des Accélérateurs, Synchrotron SOLEIL, Gif sur Yvette, France)

Jeudi 07 décembre 2017 – 13h30
Amphithéâtre SOLEIL

HDR

The so-called third generation light sources (3rd GLSs) that began to emerge since the early 90s around the world are electron storage rings dedicated for synchrotron radiation generated with dipoles and predominantly insertion devices installed in free straight sections. These rings are optimised to store a high intensity low-emittance beam in the few nanometre range with good lifetime and excellent stability. There was a marked step forward in their performance usually measured in terms of brilliance, by orders of magnitude, as compared to those of earlier generations.

A series of accelerator physics issues had to be confronted and overcome in attaining the major performance upgrade mentioned above, which can be viewed as consisting of two principal axis: One is the studies and optimisation of single particle dynamics, and the other covers those of collective motions of a beam composed of a large number of particles. While the former involves designing low-emittance optics and optimising the nonlinear behaviour of single particle motions in six-dimensions, the latter concerns interaction of a beam with its surrounding environment which is often described in terms of wake fields and impedance, or with a beam of other particle species such as ions.

The talk presents studies and optimisations made by the author with his collaborators in several 3rd GLSs in which he was involved in the past, which are SPring-8, Elettra, ESRF and SOLEIL in the context as described above. It will also address the scope of accelerator physics issues for future light source storage rings (4th GLSs) as seen by the author by introducing some of the ongoing studies and development made at SOLEIL for its future upgrade.

Vous êtes cordialement invités au pot qui suivra

Formalités d'entrée : accès libre dans l'amphi du pavillon d'Accueil.
Si la manifestation a lieu dans le Grand Amphi SOLEIL du Bâtiment Central merci de vous munir d'une piece d'identité (à échanger à l'accueil contre un badge d'accès)

SYNCHROTRON SOLEIL
L'Orme des merisiers - Saint-Aubin - BP48 - 91192 GIF S/YVETTE cedex
www.synchrotron-soleil.fr/Soleil/ToutesActualites
CONTACT : sandrine.vasseur@synchrotron-soleil.fr