

ICFA mini-WORKSHOP ON IMPEDANCES AND BEAM INSTABILITIES IN PARTICLE ACCELERATORS



Contribution ID: 3

Type: poster

Impedance Effects on Beam Dynamics in the 50 MeV ThomX Storage Ring

ThomX is a low energy Compton Backscattering Source (CBS) demonstrator which is being built at LAL, Orsay, France. As the 18 m storage ring has a design energy of 50 MeV, the electron beam is very sensible to collective effects. Furthermore the beam is extracted while a new one is injected every 20 ms, and the damping time is about 2 seconds. So the electron dynamics is not damped and the beam stability becomes a crucial matter. The impedance of all the storage ring components has been computed either by simulation, by RF measurement or by using an analytical model. The impedance effect on beam dynamics has been evaluated by tracking simulations using two different methods: the broad band resonator model and wake functions. ThomX impedance model and how the beam dynamics is affected will be shown in both cases.

Primary author: Mr GAMELIN, Alexis (Laboratoire de l'Accélérateur Linéaire (LAL))

Co-author: Dr BRUNI, Christelle (LAL)

Presenter: Mr GAMELIN, Alexis (Laboratoire de l'Accélérateur Linéaire (LAL))