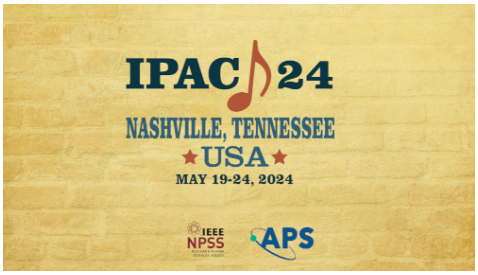

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Electron stimulated desorption using a Compton electron beam on PHIL facility

Tuesday 21 May 2024 16:00 (2 hours)

The understanding of the dynamic pressure during accelerator operation is fundamental to provide solutions to mitigate pressure rises induced by multiple-effects occurring in the vacuum chambers and leading to beam instabilities. These effects induced by pressure increase have to be well understood to reach high performances for future machines as HL-LHC or FCC-ee. To get a better understanding of the global dynamic pressure phenomena, a new experimental setup dedicated to electron stimulated desorption (ESD) measurement, i.e. molecules released from the surface of a solid by the impact of an incoming electron, was developed. The experimental setup is located at IJCLab-Orsay, France, on PHIL photo-injector beam line. This setup is composed of an experimental vessel in the low 1e-10 mbar (N2 eq.) range and a pumping system. The total pressure and the partial pressure are monitored. A second vessel is dedicated to the electron beam characterization. Qualification and commissioning of the setup were performed. The electron-stimulated desorption by Compton electron on copper beam screen at room temperature for various primary electron energy, (MeV range) have been carried out.

Footnotes

Funding Agency

Paper preparation format

Region represented

Europe

Author: BILGEN, Suheyla (Université Paris-Saclay, CNRS/IN2P3, IJCLab)

Presenter: BILGEN, Suheyla (Université Paris-Saclay, CNRS/IN2P3, IJCLab)

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