



Contribution ID: 216

Type: not specified

Results on the FCC-hh Beam Screen prototype at the KIT electron storage ring.

Tuesday 10 April 2018 08:50 (20 minutes)

The technical design concept for the FCC-hh cryogenic beam vacuum system was developed based on the constraints that emerge from the arc design requirements. Within this framework, a BEam Screen Testbench Experiment (BESTEX) measurement setup was designed with the goal of determining the photodesorption yield, synchrotron radiation heat loads and photo electron generation inside 3 different prototypes of the FCC-hh Beam Screen (BS). Each of the 3 BS prototypes, 2 meter in length, implements a different design feature, namely: 1) baseline design (BD), with electro-deposited copper and no electron-cloud (EC) mitigation features; 2) BD with set of distributed cold-sprayed anti-EC clearing electrodes; 3) BD with laser-ablated anti-EC surface texturing.

BESTEX was installed in the Karlsruhe Institute of Technology (KIT) 2.5 GeV electron storage ring KARA (Karlsruhe Research Accelerator), which has been chosen due to the similarity of the synchrotron light emission with FCC-hh, in terms of photon beam spectrum. We present here the results obtained during irradiation of the first two FCC-hh beam screen prototypes of the three which are planned to be tested on BESTEX, and the comparison with extensive monte-carlo simulations of the expected outgassing behavior under synchrotron radiation.

Author: GONZALEZ GOMEZ, Luis Antonio (INFN e Laboratori Nazionali di Frascati (IT))

Co-authors: GIL COSTA, Miguel (Centro de Investigaciones Energéticas Medioambientales y Tecnológicas); BELLA-FONT, Ignasi; BAGLIN, Vincent (CERN); Dr CASALBUONI, Sara (IBPT-KIT); CHIGGIATO, Paolo (CERN); GARRION, Cedric (CERN); HUTTEL, Erhard; KERSEVAN, Roberto (CERN); PEREZ, Francis (ALBA Synchrotron - CELLS)

Presenter: GONZALEZ GOMEZ, Luis Antonio (INFN e Laboratori Nazionali di Frascati (IT))

Session Classification: Special Technologies

Track Classification: EuroCirCol