

# Reflectivity and Photo Yield measurements of technical surfaces.

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“In the Highest Energy Proton Circular Collider ever designed, FCC-hh, a large production of Synchrotron Radiation is expected, which causes significant problems. Thus, it is very important to have an experimental characterization of optical properties of technical surfaces, in particular reflectivity and photo yield. Such material properties are essential ingredients to calculate single- and multi-bunch instabilities, vacuum behaviour, e-cloud instabilities, etc. One of the great experimental challenges for measuring such properties is not only to study them on realistic candidates to be used as accelerator walls, but to study them in conditions as close as possible to the one that will actually occur in the machine. There, SR Wight Light, with increasing (during particle acceleration), critical energy from a few eV to more than 4 keV will impinge on the accelerator walls at grazing angles smaller than 0.1 degree. A systematic experimental campaign has been recently launched, identifying the versatility offered by the At-Wavelength Metrology Station (Optics Beamline and Reflectometer) at BESSY-II in Berlin, as an ideal tool to get realistic experimental values to be used in most relevant simulations. Preliminary data on specular and non-specular reflectivity and photo yield in the UV and XUV range (from 35 eV to 1800 eV) and at grazing angles below 0.5 deg, are indeed very encouraging and will be presented and discussed here.

**Primary author:** LA FRANCESCA, Eliana (LNF INFN (IT))

**Co-authors:** SOKOLOV, Andrey (HZB (DE)); SIEWERT, Frank (HZB (DE)); SCHÄFERS, Franz (HZB (DE)); GWALT, Grzegorz (HZB (DE)); ANGELUCCI, Marco (LNF INFN (IT)); CIMINO, Roberto (Istituto Nazionale Fisica Nucleare Frascati (IT))

**Presenter:** LA FRANCESCA, Eliana (LNF INFN (IT))

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