Joint DESY and University of Hamburg Accelerator Physics Seminar

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(16:00 in Room 459/30b)

Optics Measurement Algorithms for the Proton Energy Frontier

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Abstract

In 2015 the LHC will resume operation at higher energy, i.e. with an increased damage potential. Due to machine protection considerations the higher energy sets tighter limits in the maximum excitation amplitude and the total beam charge reducing the signal to noise ratio of the optics measurement. Optics measurement algorithms will be presented which have been improved in preparation for the re-commissioning. A new, more sophisticated calculation of the measurement uncertainty has been implemented for the statistical and systematic errors of the β–function, which allowed for a significantly higher precision of the derived optical parameters. This allowed to determine interaction point (IP) β-functions (β^*) and demonstrated to be fundamental in the understanding of emittance evolution.

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