Progress Report on "DIAMOND", The New Synchrotron Radiation Facility for the UK and Details of the Storage Ring Girder Vibration Analysis

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Abstract

DIAMOND will be the new Synchrotron Radiation facility for the UK. The machine is due for completion by the end of 2006, and design and procurement work has begun. The storage ring will be 562 metres in circumference, accelerating electrons to energies of 3 GeV, and there will be space for more than 30 experimental stations using either dipole radiation or one of a range of insertion devices.

The storage ring girder assemblies are currently being designed and checked for vibration and deflection characteristics using Pro/Mechanica. After investigating different girder support mechanisms, the system used at the SLS was chosen as the most appropriate for DIAMOND and has been incorporated into the FEA model. Some optimisation work has now taken place and the fundamental frequency of the current assembly including the supports is 37 Hz. Further work is taking place to try to increase this frequency.

Keywords: status report, DIAMOND, vibration, storage ring

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