Contribution ID: **161** Type: **Poster**

Mechanical behavior of synchrotron accelerator storage ring girder system based on gravity load and vibration Energy

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The next-generation synchrotron accelerator requires a configuration of high-precision electromagnets, undulators, vacuum chambers, and monitoring devices. The accelerators currently under development demand the capability to control electron beams at the micro level with exceptional precision. Alongside the advancement of high-precision acceleration devices, developing a stable girder system to support these devices is essential. This girder system must accommodate the extensive 800 m circumference required by the synchrotron accelerator and be capable of responding appropriately to real-time changes associated with the high energy of 4 GeV. Furthermore, it must provide mechanical support without deformation to accommodate various electromagnets, vacuum chambers that serve as pathways for the electron beams, and devices for monitoring the electron beams. Additionally, the system should be capable of addressing ground irregularities and assembly stability concerns during accelerator installation. This study investigates the stability assurance methods for the girder system through static and vibration analyses aimed at reliably supporting the next-generation synchrotron accelerator.

Contribution track

ICABU WG1. Accelerator Systems

Paper submission Plan

Yes

Best Presentation

No

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