Contribution ID: **0** Type: **poster**

The new vibration condition monitoring system at the ISIS Synchrotron

Tuesday, 12 November 2019 10:30 (1h 30m)

This poster will go through the concept, design, implementation and delivery of the new vibration condition monitoring system at the ISIS Synchrotron in Oxford England. It will show the initial reasons for doing the project and the problems and limitations of installing the system within a 35 year old Synchrotron building. We then explain the software infrastructure and new analytical tools available to diagnose and condition monitor the Synchrotron magnets. Example of anomalous data are shown and how potential analytical tools, developed in academia and industry will help us to monitor health and trends as well as predict fault modes before they become catastrophic causing the beam to trip.

Summary

The new vibration condition monitoring system at the ISIS Synchrotron in Oxford England was designed and commissioned by the ISIS performance Improvement department in March 2019. It replaced a manual condition monitoring system that exposed personnel to unnecessary safety risks and only gave instantaneous data, often inexact and variable, at the time of measurement. The new system has automated the process providing rigorous 24/7 vibration data on all Synchrotron lattice magnet systems and presents data for potential real time fault detection on the ISIS control system as well as storing data for post analysis, looking for trends and developing fault modes. The data has exposed a whole new dimension for understanding the Synchrotron magnets. We are now learning to interpret this new information within a landscape of improved data processing and machine analytics technology from both within the accelerator community and from other industries.

Primary author: Mr ASIM, Yaqoob (STFC/ISIS)

Co-author: Mr JULIAN, Brower (STFC/ISIS)

Presenters: Mr JULIAN, Brower (STFC/ISIS); Mr ASIM, Yaqoob (STFC/ISIS)

Session Classification: Poster Session