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Earthquake measurements and those analysis on ir components and Belle II detector in KEK

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We frequently experience earthquakes in Japan. Even though countermeasures against earthquake is deeply considered and well carried out, sometime troubles are occurred on facilities or experimental devices. When we focus on the relative displacement due to an earthquake, it is possible to cause damage of a beam pipe bellows or interference by disappearing tolerance between the sub-detectors. And magnet quenches have been triggered due to relative displacement of magnetic fields between three superconducting solenoids, i.e., the detector solenoid and two compensating solenoids in each final focus magnets, when earthquake occurred. So, we set acceleration sensors, the relative displacements had been measured. And also, laser distance sensors and gap sensors mounting on the final focus magnets were referred for this study. From these measurement data, characteristics of earthquakes were analyzed. Measurement acceleration data was also applied for response spectrum analysis. In this presentation, we will present the measurements and analysis results, and comparison between the measurements and the FEM calculations are shown.

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Footnotes

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Yes

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