

Investigation of vibrational properties of the KEKB tunnel after the Great East Japan Earthquake

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Ground motion measurements of the KEKB tunnel were carried out multiple times over the ten years of KEKB operation. The levels and characteristics of the KEKB tunnel vibrations were consistent among the data taken at various times for identical measurement locations. However, the data we took during the recovery work from the Great East Japan Earthquake indicated that the vibration properties are now different from those observed in data taken before the earthquake. The tunnel seems to vibrate more and has become more sensitive to traffic and cultural noises. Ground motions at various locations in the KEKB tunnel were re-measured after the earthquake and compared with those of before the earthquake. A geological survey was also carried out in order to understand the structure of the KEKB tunnel and the soil conditions surrounding the tunnel. The tunnel damage due to the earthquake was evaluated. The results of ground motion measurements will be presented along with the results of the geological survey.

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