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## Vibration Isolation System for KAGRA: Overview and Results in the First Operation

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KAGRA is a Japanese interferometric gravitational-wave telescope with an arm length of 3 km. Main features of KAGRA are 1) placing underground and 2) cooling down mirrors to cryogenic temperature. The test operation with room temperature is over in April 2016.

We achieve vibration isolation of mirrors with long multistage suspension systems called seismic attenuation systems (SAS.) Each stage has functions to lower its resonant frequency. Because the whole of suspension system has to be operated with the interferometer, its control system becomes very complicated. I report an overview of KAGRA's vibration isolation systems and results of suspension performance in the first operation.

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