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Registration No:10020  
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Submission Identifier:  
Membership ID:67307E

Information for compiling program  
Applied Field:Cosmic rays / Astrophysics Division

Keyword 1:H. Gravitational waves  
Keyword 2:  
Keyword 3:  
Keyword 4:  
Keyword 5:  
Keyword 6:

English session:Yes  
Presentation Type:Oral Presentation  
Will apply for the Joint Session:No  
Joint Field :  
Letter of invitation:No  
Sequential Presentation:No  
(Registration No. :)  
Application for Student Presentation Award:Not a subject for review  
School year:

Information of Presenter (required)  
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Presentation information:  
Presentation title:  
Development of Cryogenic Accelerometer for Vibration Measurement in KAGRA  
Cryostat-II.

Organization:  
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Abstract body:  
KAGRA (Large-Scale Cryogenic Gravitational-Wave Telescope, LCGT) is a second generation gravitational-wave detector under construction in Japan. The arm length of the detector is 3 km and is located in Kamioka mine (Gifu prefecture). Two unique features of KAGRA are: (1) it is located 200 m underground which reduces seismic and gravity gradient noise, and (2) cryogenic operation of the interferometer.  
The mirror (23 Kg sapphire test mass) in KAGRA and its suspension system (called cryogenic payload) is cooled down to 20K in order to reduce the thermal noise. However, heat links connected to the cryo-payload (to cool it down) transmit seismic and cryocooler vibrations to the mirror which can contaminate the

interferometer output. Development of accurate accelerometer is crucial to monitor and control the vibrations injected by the cryocooler and the cryostat. So, we are developing a compact accelerometer which can be added to the radiation shield of the cryostat for monitoring radiation shield vibration. In this presentation, I will report on the room temperature and cryogenic performance of this accelerometer.