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# 6.7 Development of Passive Vibration Isolator for the Interferometers on KSTAR

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Laser interferometry, as one of the important plasma diagnostic systems on the magnetic fusion devices, suffers from vibration-induced noise. Advanced tokamak interferometers utilize technology that is intrinsically free from vibration-induced noise such as two-color interferometer or dispersion interferometer. However, data analysis of Two Color Interferometer (TCI) on KSTAR showed that the removal of vibration on the retro-reflectors will improve the quality of TCI diagnostics. A passive vibration isolator based on the mass-spring system is developed for the interferometers on KSTAR. The new vibration isolator can be used for the vertical beam coming out from bottom in the strong magnetic field. Comparison of line integrated density data from the Far Infrared Interferometer with vibration isolator and without vibration isolator indicated that 98% of vibrational noise is removed. In addition, the design of a compact passive vibration isolator for the in-vessel installation will be presented.

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