N1-P016

Detection of the mechanical resonance of a micromechanical cantilever using dynamic flexural measurement technique and its mass sensing application

김학성, 윤호열, 정운석, 유나리, 박정호, 이상욱

Division of Quantum Phases & Devices, School of Physics, Konkuk University

We studied to detect the mass variation using micro mechanical resonator. For measuring the resonance frequency of the micro mechanical system, optical method using laser interference is selected. A simple resonator is prepared by attaching an AFM cantilever on the piezo stack. The piezo stack makes a the cantilever vibrated with its resonance frequency. To change the mass of the resonator, gold was evaporated on the cantilever. We measured how much resonance frequency was changed according to the amount of gold attached on cantilever. This resonator is able to perform the role of a mass sensor and has a resolution of the order of micrograms. The fabrication of the resonator and measurement setup for detecting the mechanical resonance will be introduced in this presentation.

Keywords: cantilever, micro, mass sensor, resonance