Longitudinal bulk acoustic mass sensor

A polycrystalline silicon longitudinal bulk acoustic cantilever is fabricated and operated in air at 51 MHz. A mass sensitivity of 100 Hz/fg (1 fg = 10^-15 g) is obtained from the preliminary experiments where a minute mass is deposited on the device by means of focused ion beam. The total noise in the currently applied measurement system allows for a minimum detectable mass of 0.5 fg in air.

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