Abstract

Initial results from the study of dissipation in nanomechanical palladium resonator of width around 250 nm, thickness 80 nm and length 5 μm suspended over the underlying silicon substrate are presented. The electromechanical response of the resonator was measured using the magnetomotive method over the temperature range from 1 K to 145 mK. The resonator had a fundamental frequency of about 33.83 MHz at low temperature different .Differential thermal contraction between the palladium beam and the underlying silicon substrate increases the tension which may have caused this high frequency.Two fold in- crease the quality factor of the resonator was observed between 1 K and 145 mK. The dissi- pation follows a weak power law dependence on temperature, T0.47 from approximately 200 mK to 1 K. The relative shift in frequency shows logarithmic dependence on temperature.