

Abstract Submitted  
for the MAR11 Meeting of  
The American Physical Society

**Damping effects of capacitive comb fingers on biomimetic MEMS directional microphone**<sup>1</sup> JOHN ROTH, MICHAEL TOUSE, JOSE SINIBALDI, GAMANI KARUNASIRI, Naval Postgraduate School — MEMS directional sound sensors that use two coupled wings moving in air are subjected to viscous damping. The amplitude of oscillation of the sensors is read out by measuring the capacitance of interdigitated comb fingers along the edges of the wings. In this presentation, effects of damping on MEMS sensors with and without comb fingers will be described. It was found that the sensors with comb fingers have a significantly larger damping indicating that the longer perimeter due to combs is responsible for the observed increase [1]. However, the increase in damping reduces the quality factor which improves the response time of the device.

[1] W. Zhang and K. Turner, *Sensors & Actuators: A*. **134** p.594 (2007).

<sup>1</sup>This work is supported by NSF.

Michael Touse  
Naval Postgraduate School

Date submitted: 28 Nov 2010

Electronic form version 1.4