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**Branched comb fingers improve capacitive readout sensitivity to vertical motion in a MEMS sound sensor**[1] RICHARD DOWNEY, GAMANI KARUNASIRI, Naval Postgraduate School — A microelectromechanical (MEMS) device that relies on capacitive readout of vertical, out-of-plane displacements can be made more sensitive by replacing the traditional straight comb fingers with a branched design. A branched structure allows for larger capacitors using shorter fingers. When fabrication design rules limit finger length, a branched design can have greater surface area, greater capacitance, and therefore greater sensitivity to vertical displacements. Applying this concept to a MEMS acoustic direction-finding (DF) sensor, we predict and then demonstrate an approximate doubling of signal output.

[1]NCMR/NSF

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