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**Scott W. Hansen\*** ([shansen@iastate.edu](mailto:shansen@iastate.edu)), Department of Mathematics, Iowa State University, Ames, IA 50011. *Locally Distributed Controllability of a Class of Cochlea Models.*

Two variations of a basic model for a cochlea are described which consist of the basilar membrane coupled with a linear potential fluid. The basilar membrane is modeled as an array of oscillators which may or may not include longitudinal elasticity. Approximate controllability with locally distributed control on a portion of the basilar membrane is proved for both models and moreover exact controllability is shown to hold when longitudinal stiffness is included. (Received September 11, 2016)