Modeling the Convective Noise in an Electrochemical Motion Transducer

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This paper studies the convective noise generated in transducers found in electrochemical motion sensors. The theoretical model uses a Langevin method applied to equations of hydrodynamics. The proposed approach was applied to a transducer with a planar geometry composed of four small electrodes deposited on the walls of the thin channel of the transductive element. For realistic parameters, the modelling results agree well with the experimental data.

Keywords: Ion transport, convective diffusion, sensors, self-noise, hydrodynamics.

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