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Hamid Mofidi* (hamidreza.mofidi@gmail.com), 951 Arkansas Street, Apartment K6, Lawrence, KS 66044, and **Weishi Liu**. *Effects of Diffusion Coefficients and Permanent Charge on Reversal Potentials in Ionic Channels*.

In this work, the dependence of reversal potentials and zero-current fluxes on diffusion coefficients are examined for ionic flows through membrane channels. The study is conducted for the setup of a simple structure defined by the profile of permanent charges with two mobile ion species, one positively charged (cation) and one negatively charged (anion). Numerical observations are obtained from analytical results established using geometric singular perturbation analysis of classical Poisson–Nernst–Planck models. For 1:1 ionic mixtures with arbitrary diffusion constants, Mofidi and Liu (arXiv:1909.01192) conducted a rigorous mathematical analysis and derived an equation for reversal potentials. We summarize and extend these results with numerical observations for biological relevant situations. The numerical investigations on profiles of the electrochemical potentials, ion concentrations, and electrical potential across ion channels are also presented for the zero-current case. Moreover, the dependence of current and fluxes on voltages and permanent charges is investigated. (Received August 04, 2020)