

TEMPLE UNIVERSITY
Department of Mathematics

Applied Mathematics and Scientific Computing Seminar

Room 617 Wachman Hall

Wednesday, 18 January 2013, 4:00 p.m.

Fluid Assisted Charge Transport: Mathematical Consistency of the Navier-Stokes/Poisson-Nernst-Planck Model

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Abstract.

The Navier-Stokes/Poisson-Nernst-Planck model assumes significance because of its connection to the electrophysiology of the cell. The steady model is especially important in ion channel modeling, because the channel remains open for milliseconds, and the transients appear to decay on the scale of tens of nanoseconds. In this talk, emphasis will be placed upon the mathematical consistency of the steady models. Some representative applications and simulations will be included.