1145-VN-2940 **Ryan M Evans*** (ryan.evans@nist.gov), 100 Bureau Drive, Gaithersburg, MD 20899, **Arvind Balijepalli**, 100 Bureau Drive, Gaithersburg, MD 20899, and **Anthony Kearsley**, 100 Bureau Drive, Gaithersburg, MD 20899. *Transport Phenomena in Biological Field Effect Transistors.*

Biological field effect transistors (Bio-FETs) are novel nanoscale electronics instruments that are designed for biomarker detection. Well-suited for biomarker measurement due to high charge sensitivity and direct signal transduction, these instruments have the potential to provide physicians with rapid, accurate, and portable measurements of biomarkers. A mathematical model for Bio-FET experiments will be presented that takes the form of a diffusion equation coupled to a nonlinear equation that described the evolution of the reacting species concentration. (Received September 25, 2018)