Abstract Submitted
for the DFD10 Meeting of
The American Physical Society

Numerical Simulation of a Micropump with Step Electrodes Using the Steric Effects BYOUNG JAE KIM, Korea Atomic Energy Research Institute, SEUNG-HYUN LEE, Korea Institute of Machinery and Materials, SOGHRA REZAZADEH, KYUNG HEON LEE, HYUNG JIN SUNG — Numerical simulations were made of a micro-pump with step electrodes. An AC voltage was applied to each pair of step electrodes. The existing numerical studies using linear assumptions have a limitation that the theory is limited to low external voltage, at most 25mV. However, the present study took into account the Steric effect which is recognized as a good candidate to overcome such a limitation. Geometrical optimization and the effects of an AC external voltage on pumping flow rate were studied.

Byoung Jae Kim
Korea Atomic Energy Research Institute

Date submitted: 06 Aug 2010 Electronic form version 1.4