

Modeling Microscale Electrohydrodynamics

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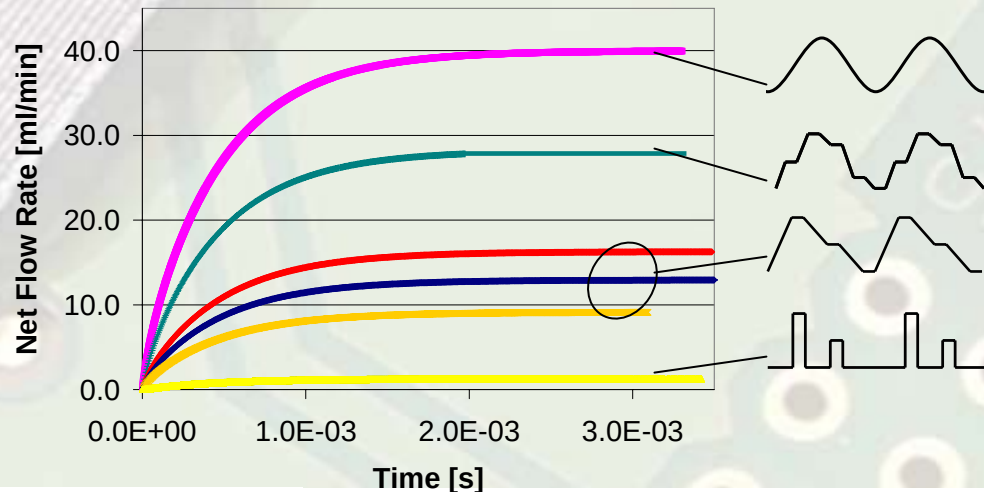
Student: B. D. Iverson, Dr. L. Cremaschi

OBJECTIVE

Develop a multiphysics modeling tool for microscale EHD that can accommodate different electrical and mechanical boundary conditions

APPROACH

Distribution of assigned potential significantly affects flow rate from EHD



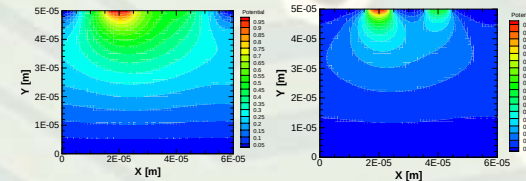
IMPACT

Numerical model enables:

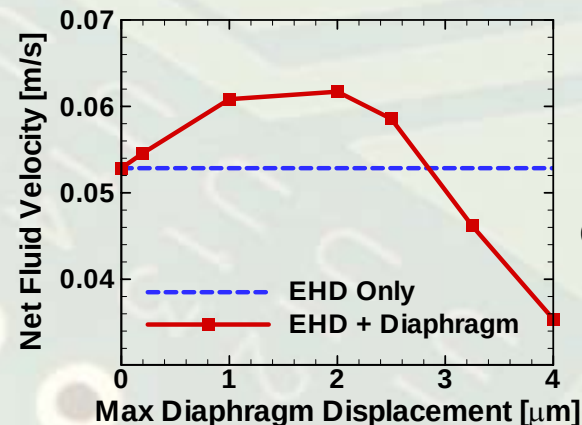
- Determination of optimum configuration for prototypes
- Exploration of boundary condition effects
- Studies for different applications and configurations

SELECTED PUBLICATIONS

- L. Cremaschi, B. D. Iverson and S. V. Garimella, ASME International Mechanical Engineering Congress and Exposition, IMECE2006-13264, Chicago IL., 2006.
- V. Singhal and S. V. Garimella, IEEE Trans Advanced Packaging **28**:216-230, 2005.
- V. Singhal and S. V. Garimella, J Fluids Engineering **127**:484-494, 2005.



Insulation boundary condition



Bulk fluid motion enhancement of EHD