Dear all,

I am working on a 2D AC electroosmosis problem, the model consists of a pair of electrodes.

The models which I adopt are (1) Conductive DC media, and (2) Incompressible Navier-Stoke.

I have some difficulties in defining the boundary conditions at the electrodes.

Electrode BC (for Conductive DC media):

$$σn\frac{∂∅}{∂y}=iωC\_{DL}(∅-V\_{applied})$$

Electrode BC (for Incompressible Navier-Stoke):

$$u\_{slip}=-\frac{ε}{4η}Λ\frac{∂|∅-V\_{applied}|^{2}}{∂x}$$

I would like to write the above two equations in COMSOL.

Any advice would be deeply appreciated.

Best Regards,

yang

Reference:

Loucaides N., Ramos A., Georghoiu G.E., Novel systems for configurable AC electroosmotic pumping, Microfluidics and Nanofluidics, Vol3, pp709-714, 2007. <http://www.springerlink.com/content/171127n275151g66/>