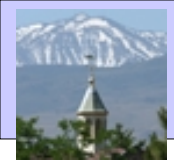




Research review

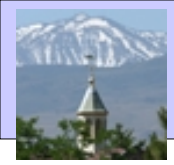
My research at the moment and the goals.

Deivid Pugal



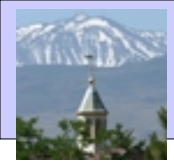
About me :)

- Deivid Pugal
- University of Tartu, Estonia
- Working on masters degree in physics
- Will stay here for about a year.



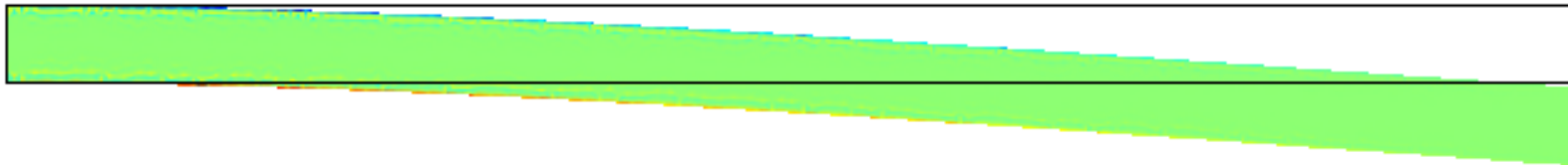
Present goal

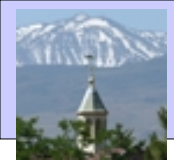
- Develop a model of IPMC
- Simulation method - FEM
- The model should be able to:
 - predict IPMC actuation under applied electric field
 - take account chemical reactions



Completed tasks

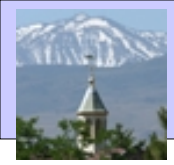
- Model of movement of the anions.
 - $\frac{\partial C}{\partial t} + \nabla \cdot (-D \nabla C - z u C \nabla V) = 0$
- Model of electric field change due to the ion movement
 - $\nabla^2 \phi = -\rho$





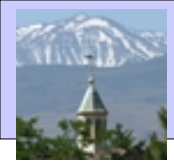
Working on...

- Coupling ion movement with IPCM actuation
 - Involves lots of reading about continuum mechanics
 - The model is almost OK
- Modelling chemical reactions and doing experiments
 - Haven't started yet...



More about goals

- Short term goals
 - Develop a good model
 - Write a publication for EAPAD which would be base of my master thesis.
- Long term goals
 - Develop a FEM model which could be a “bridge” between Molecular Dynamics Simulations and Engineering/Applications.



Thank you!
(M)any questions?