Proposed figures for SPIE paper

Deivid Pugal

December 14, 2006

0.1 Proposed figures

Remark: These are really preliminary figures and scales and descriptions should be modified for the real paper.



Figure 1: Concentration of Na+ ions in IPMC - electrostatic balance is formed already. X axis is cross section of IPMC, units are meters.



Figure 2: Electric field inside the IPMC in charge balance situations. X axis is cross section of IPMC [m].



Figure 3: Stress formed due to charge imbalance - comes from Comsol model. X is again IPMC cross section.

Remark: I guess I should read more comsol manual to explain this stress more explicitly.



Figure 4: The same stress as was displayed in 3 on the previous page, but in longitudinal direction of IPMC. The x axis in meters. Again, this needs more explanation (and more reading from comsol reference book). But I think this figure could fit into the article.



Figure 5: Tip displacement in time - x axis is in seconds and y axis is in meters. Some parameters need to be adjusted in equations, to fit this graph to experimental results. So the displacement value is not so absolute yet.



Figure 6: This image could be a nice illustration of outcome of simulations - of course, it needs some image processing before inserting into the article.



Figure 7: Concentration of formaldehyd near the platinum surface due to the reactions. X axis is in meters again. This also need some work - I still need to work on double layer size and relevant parameters.



Figure 8: Concentration change in time due to electrochemical reactions - actually I think that the timescale should be larger than 10s. Because the overall concentration seems to decrease in time.



Figure 9: U - voltage, green line repr
seens deformation (need to add units after later). X axis is time.