Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Ordered and disordered pores in porous anodic alumina: Partial equilibrium results from hexagonal lattice[1] ARIEF BUDIMAN, DANIEL LO, University of Calgary — Cluster variation method is employed to find equilibrium states of pore arrangement in porous anodic alumina. Our work is motivated by a need to predict the extent of pore ordering in the anodic alumina. The pores are assumed to occupy a hexagonal two-dimensional lattice and interact with each other through their elastic deformations. Alumina-electrolyte interface energy and metal-oxide interface stress are included in the analysis. Equilibrium ordered and disordered states are obtained. Spatial pore arrangements of these states will be presented. Incorporation of ionic transports in the electrolyte and aluminum-to-alumina reactions to the model will be discussed.

[1]We acknowledge the financial support of NSERC.

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Date submitted: 21 Nov 2008 Electronic form version 1.4