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Maxim Zyskin* (maxim.zyskin@eng.ox.ac.uk), Department of Engineering Science, University, of Oxford, Oxford, Oxfordshir OX1 3PJ, United Kingdom. *Thermodynamics-based nonlinear electrochemistry transport problems.*

In my talk I will describe thermodynamics-based method of deriving nonlinear equations of electrochemical transport, some analytical and numerical approaches to solving such equations, and molecular dynamics based methods of parameter estimation. This work has applications to multi-physics modeling of electric batteries and other electrochemistry transport problems. (Received September 25, 2018)