

# Department of Mathematics and Computer Science

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Thursday, October 24, 2019, 4:00 pm

COLLOQUIUM TALK

**Speaker: Andrew Wrobel (formerly of the London School of Economics)**

Old Main 2210

## Operation and valuation of an energy storage plant

### Abstract:

The talk will present an application of duality in linear programming to the above problem. The continuous-time LP is doubly infinite (it contains a continuum of variables and of constraints), but for numerical computation time would have to be discretized, and then the resulting finite LP could be handled by standard software (implementing the simplex algorithm, for example). As the discretization is being refined, both solutions (the primal and the dual) should converge. In particular, the dual solution for the time-of-use shadow price of the energy stock should converge to the continuous-time solution, which is known to be unique and to be a continuous function of time (over the production cycle). Such numerical analysis has never been done yet, and it would make an interesting student project. Further details may be found in my joint paper with Anthony Horsley “Efficiency rents of pumped-storage plants and their uses for operation and investment decisions”, *Journal of Economic Dynamics and Control*, Vol. 27, Issue 1, Nov. 2002, pp. 109-142.

SNACKS IN FACULTY LOUNGE AT 3:30 PM.  
EVERYONE WELCOME (EVEN IF YOU ARE UNABLE TO ATTEND THE TALK)

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