

## MAGDEBURG LECTURES ON OPTIMIZATION AND CONTROL



MAGdeburg Lectures on Optimization and Control

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University of Groningen

Optimal control, optimisation,  
market mechanisms and physics of  
smart energy systems

Di. 09.01.2018 17:00 MPI Großer Saal 'Prigogine'

Further information:  
[www.mpi-magdeburg.mpg.de](http://www.mpi-magdeburg.mpg.de)

Jointly organized by: Faculty of Electrical Engineering and Information Technology  
Faculty of Mathematics  
Max Planck Institute Magdeburg  
Center for Dynamic Systems: Biosystems Engineering

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09.01.2018 - **Optimal control, optimisation, market mechanisms and physics of smart energy systems**

› Prof. dr. ir. Jacquelin M.A. Scherpen  
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### Time & Place

The presentation on January 23, 2018 will be given in the › Max Planck Institute Magdeburg (<http://www.mpi-magdeburg.mpg.de/>), Großer Seminarraum 'Prigogine' and starts at 5.00 p.m..

### Abstract

In this talk I will first give a combined distributed, hierarchical optimal control perspective using dual decomposition and pricing mechanisms for smart energy systems, and in particular for household prosumers (consumers and producers). In this setup a possible future (EU) market structure is taken into account. Furthermore, I will take a second perspective from the physics, where stabilisation is important,

and optimisation is done on the welfare function. Some questions about the coupling of these two perspectives are raised.