

ANNUAL SEMINAR IN  
OPTIMIZATION AND SYSTEMS ENGINEERING

## SEMINAR PROGRAM

- |       |   |       |  |
|-------|---|-------|--|
| 10.00 | <b>Professor Tapio Westerlund</b><br>Chairman of the OSE group<br><i>Opening statement</i>  | 13.50 | <b>Otto Nissfolk, PhD student</b><br><i>A metaheuristic optimization algorithm<br/>for binary quadratic problems</i> |
| 10.05 | <b>Professor Stratos Pistikopoulos</b><br><i>Multi-parametric programming<br/>and explicit model predictive<br/>control – a progress report</i> | 14.10 | <b>Anders Skjäl, PhD student</b><br><i>Two approaches to underestimating<br/>quadratic functions</i>                 |
| 10.50 | <b>COFFEE</b>   | 14.30 | <b>COFFEE</b>  |
| 11.10 | <b>Professor Stratos Pistikopoulos</b><br><i>Modeling, optimization and advanced<br/>control of biomedical systems</i>                          | 15.00 | <b>Johan Pensar, PhD student</b><br><i>A Bayesian score for LDAGs</i>  |
| 12.00 | <b>LUNCH</b><br><i>Café Arken</i>   | 15.20 | <b>Amir Shirdel, PhD student</b><br><i>System identification in the<br/>presence of trends and outliers</i>          |
| 13.30 | <b>Axel Nyberg, PhD student</b><br><i>The quadratic assignment problem</i>  | 15.40 | <b>Mikael Nyberg, PhD student</b><br><i>State splitting in continuous<br/>time STN-models</i>                        |



OPTIMIZATION AND  
SYSTEMS ENGINEERING

## ANNUAL SEMINAR 2012

Tapio Westerlund

CHAIRMAN OF THE OSE GROUP

CENTER OF EXCELLENCE IN  
OPTIMIZATION AND SYSTEMS ENGINEERING  
ÅBO AKADEMI UNIVERSITY

ÅBO, FINLAND, NOVEMBER 29 2012



## About the OSE research group

- ▶ For the period 2010–14, Åbo Akademi University has appointed four internal Center of Excellences within research:
  - ▶ *Cell Stress and Molecular Aging*
  - ▶ *Democracy: A citizen perspective*
  - ▶ *Optimization and systems engineering*
  - ▶ *Post-secular culture and a changing religious landscape*
  
- ▶ In addition to these, the national CoE in *Intelligent materials*, appointed by the Academy of Finland for the period 2008–13, is coordinated at ÅAU.
  
- ▶ The internal CoE in Optimization and Systems Engineering (OSE) is focusing on theory, methods and algorithms in systems engineering, optimization and statistics, as well as their applications in science and engineering. The group bridges the systems engineering, systems theory and mathematical disciplines at ÅAU.



## Key facts about the OSE research group

### ► Steering group:

Prof. Tapio Westerlund  
Process design and  
systems engineering



Optimization

Prof. Jukka Corander  
Mathematics



Mathematical statistics

Prof. Göran Högnäs  
Mathematics



Systems theory

Prof. Hannu Toivonen  
Industrial systems  
engineering



Systems engineering

### ► Funding sources:

- Foundation of Åbo Akademi University: 1.2 MEUR 2010–14
- Academy of Finland, EU, Outotec Research: 2.0 MEUR 2008–13

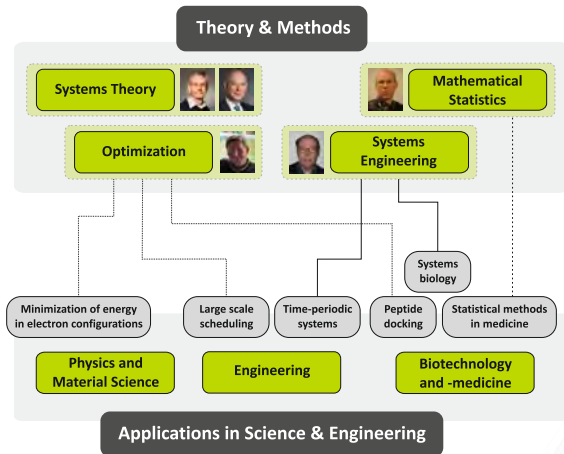
### ► Currently the group consists of about 25 PhD students and post doc researchers

### ► Publications 2010–12 include a monograph, four book chapters and over 70 peer-reviewed journal papers



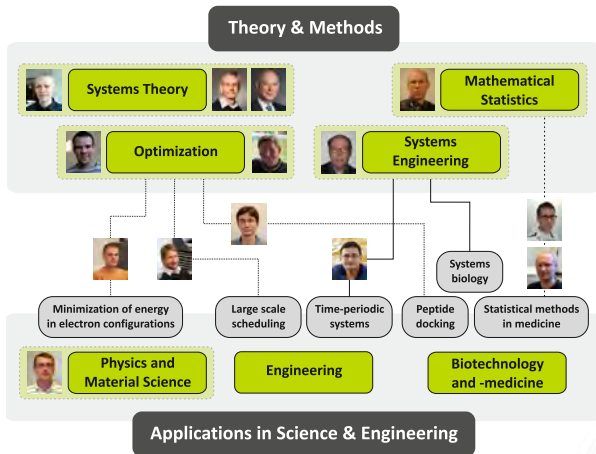
## Structure of the OSE group

*The research areas and group leaders*



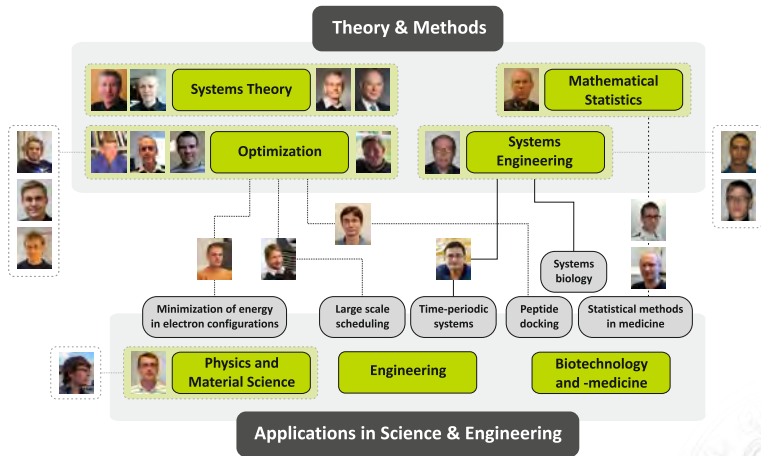
## Structure of the OSE group

*People with direct financing*



## Structure of the OSE group

*People with direct financing and some affiliated researchers*



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## Invited speaker

*Professor Stratos Pistikopoulos, Imperial College London, UK*

- ▶ earned his PhD from Carnegie Mellon University, USA, 1988
- ▶ was with Shell Chemicals, the Netherlands, before joining Imperial College in 1991
- ▶ is a Professor and Director of Research in the Department of Chemical Engineering at Imperial College London and was the director of the Centre for Process Systems Engineering 2001–09
- ▶ has authored over 250 major research journal publications and eight books
- ▶ has received numerous awards and recognitions, including the Mac Robert Award and Gold Medal from the Royal Academy of Engineering, an Advanced Investigator Award from the European Research Council
- ▶ on October 30, 2012 he received the Computing in Chemical Engineering Award of the Computing and Systems Technology (CAST) Division of the American Institute of Chemical Engineers (AIChE)



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## Lunch

*Café Arken, Fabriksgatan 2*

