

EKC2+ACCESS *Smart Grids* Workshop

An InnoEnergy CC Sweden Initiative

Control and Pricing for Smart Transmission Systems



KTH Royal Institute of Technology
May 24, 2011



Acknowledgement

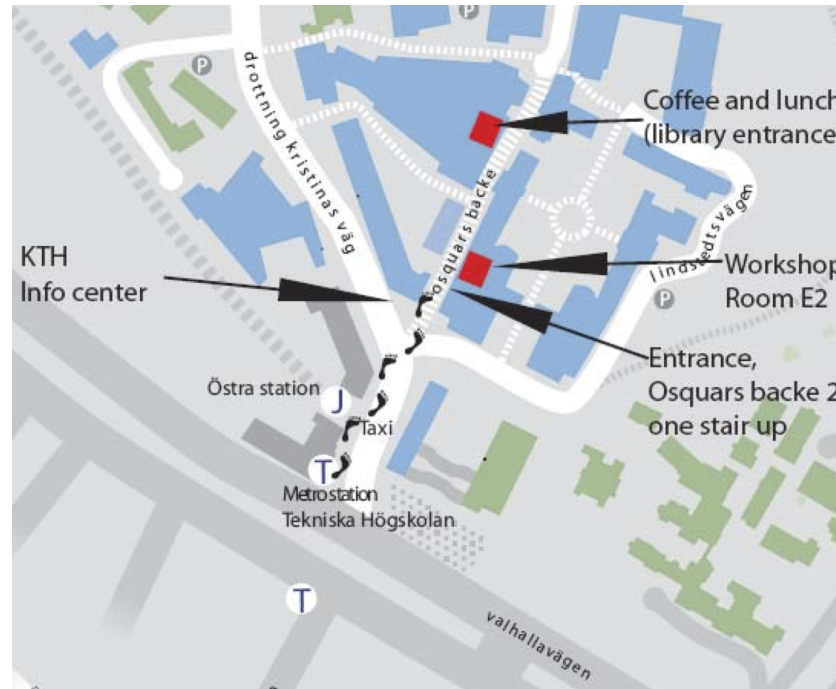
- Thanks to our **speakers** from Sweden and abroad!
- To our **guests** for making it today to the workshop.
- To our **organizers**:
 - Dr. Luigi Vanfretti
 - Dr. Henrik Sandberg
 - Dr. Robert Eriksson
 - Marie Androv Broms
- To our **students** for helping with the workshop.
- To our supporters:
 - EKC2 – Swedish Center of Excellence in Electric Power Engineering
 - ACCESS Linnaeus Center
 - InnoEnergy Collocation Center Sweden
 - KTH

Agenda

08:00-08:30	REGISTRATION AND COFFEE
08:30-09:00	Welcome and Opening Presentation Title: On Cyber-Security of State Estimators and Fault Analysis of the Transmission Grid Karl Henrik Johansson, KTH, Sweden
09:00-09:40	Title: Smart Grid Data Integrity Kameshwar Poola, University of California, Berkeley, USA
09:40-10:20	Title: WAMS and WACS Enabling the Smart Grid at Statnett Jan Ove Gjerde, Statnett, Norway
10:20-10:40	COFFEE BREAK
10:50-11:30	Title: Wide-Area Power System Damping Control using Synchrophasor Data Joe H. Chow, Rensselaer Polytechnic Institute, USA
11:30-12:00	Title: Experimental ICT Systems for Wide-Area Measurement and Control Systems Lars Nordström, KTH, Sweden
12:00-13:30	LUNCH
13:30-14:10	Title: Optimal Sensor Placement for Parametric Model Identification of Electrical Networks Using Mixed Phasor Measurements Aranya Chakraborty, North Carolina State University, USA
14:10-14:50	Title: Metaheuristic Open Source Power System Optimization and Analysis using HeuristicLab Stephan Hutterer, Upper Austria University of Applied Sciences
14:50-15:10	COFFEE BREAK
15:20-16:00	Title: Some Control Theory Problems in Modern Energy Systems Romeo Ortega, SUPELEC, France
16:00-16:40	Title: New Phenomena in Bulk Power System Control Yuri Makarov, Pacific Northwest National Laboratory, USA
16:40-17:10	Closing Presentation Title: Pricing in Markets with Large Amounts of Variable Power Production Lennart Söder, KTH, Sweden
17:10-17:30	Panel with the Speakers – Moderator Lennart Söder, KTH, Sweden

Comments

- Coffee breaks and lunch will not be served in this room. Please see the map in the agenda.



- Speakers – please give Luigi your slides to upload into the webpage!
- They will be uploaded in the following link within one week:

<http://tinyurl.com/ekc2-access-stg-wkshop>

- **Mission:**
 - The mission for EKC² is to establish the center as leader in the area of Electric Power Engineering, and create a natural meeting point for industry and academia in northern Europe.
 - To ensure that the research areas and its output are relevant to society:
 - The centre is guided by strategic societal goals set by the partners
 -and industry:
 - Projects are defined by steering committees, where industry partners are in majority



Strategic Goals for EKC²

- Energy System Goals
 - *Integration of new power sources*
 - *Affordable reliability*
 - *Energy Efficiency*
 - *Market development*
- General Goals
 - *Platform for implementation of new technologies*
 - *Proliferation of knowledge*
 - *Stimulate economic growth*



The EKC² Partnership

- EKC² is built on a tradition of successful co-operation between industry, academia and society dating back more than **15 years**.
- Funding for the centre is provided by the Swedish Power Industry, the Swedish Energy Agency and KTH - The Royal Institute of Technology.
- EKC² is hosted at the School of Electrical Engineering at KTH – The Royal Institute of Technology



Industry Partners





Short facts EKC²

- Four Research programs
- Annual budget
 - 1,7 MEuro Cash
 - 1,1 MEuro InKind
- 29 Research and Development projects
- Staff at KTH
 - 20 Ph.D Students (19,28 fte)
 - 14 Faculty (6,74 fte)
 - 7 Full Professors
- Researchers at Industry Partners
 - 27 man-months researchers
 - 36 man-months engineers

ACCESS Linnaeus Center



- ACCESS was established as one of twenty excellence centers by the Swedish Research Council (VR) 2006
- One of Europe's leading university research centers in networked systems
 - 35 faculty, 20 postdocs, 100 PhD students
 - Basic funding from VR on 11.5 MEUR for 10 years
 - Total research budget 2010 ca 10 MEUR
- Graduate School
- Faculty renewal and mobility
- Extensive industrial and international collaborations
- External communication and dissemination

Transportation Systems



Smart Buildings



Personal Communications



Communication Networks



Digital City



Healthcare Services



Process Industry



Smart Grid





ROYAL INSTITUTE
OF TECHNOLOGY

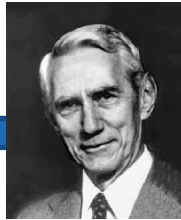
Target Fundamental Research Challenges Across Disciplinary Foundations

Radio



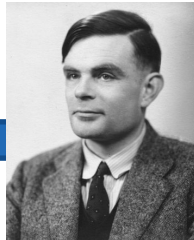
Guglielmo Marconi

Communications



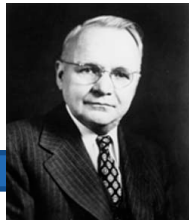
Claude Shannon

Computing



Alan Turing

Control



Harry Nyquist

ACCESS

Major Industrial Collaborations





Graduated ACCESS PhD Students

2011	Sha Yao (KTH)	2008	Tung Kim (Princeton)
2011	Peter von Wrycza (Ericsson)	2008	Xi Zhang (McKinsey)
2011	Aymeric Fouquier d'Herouel (Inst. Systems Biology, Seattle)	2008	Märta Berenthin Syberg (FLIR)
2011	Pan Gun Park (KTH)	2008	Alberto Gonzalez Prieto (Cisco Systems)
2011	Per Sahlholm (Scania)	2008	John Ardelius (SICS + Singbox)
2010	Vladimir Vukadinovic (Disney Research)	2008	Niels Möller (Conemtech)
2010	Niklas Jaldén (Ericsson)	2007	Niclas Björsell (Högskolan i Gävle)
2010	Isaac Skog (KTH)	2007	Magnus Isaksson (Högskolan i Gävle)
2010	Fetahi Wuhib (KTH)	2007	David Wisell (Ericsson)
2010	Maria Werner	2007	David Hammarwall (Ericsson)
2009	Lei Bao (Ericsson)	2007	Patrick Svedman (ZTE)
2009	Svante Bergman (Ericsson)	2007	Constantin Adam (J.P. Morgan)
2009	Marc Mowler (Ericsson)	2007	Karl Werner (Ericsson)
2009	Ian Marsh (Univ. of Porto)	2006	Alberto Speranzon (UTRC)
2009	Yohei Kuroiwa (Japan)	2006	Tomas Andersson (Ericsson)
2008	Ignacio Más Ivars (Ericsson)	2006	Joakim Jaldén (KTH)
2008	Jing Fu (Ericsson)	2006	Markus Hidell (KTH)
2008	Niklas Wernersson (Ericsson)	2006	Gianantonio Bortolin (Volvo)
2008	Giovanna Fanizza (SwissQuant)	2006	Christelle Gaillemard
2008	Johan Karlsson (Sirius International)		David Anisi (ABB AS)
			Tove Gustavi (FOI)
			Maja Karasalo (SAAB)

EKC2+ACCESS *Smart Grids* Workshop

An InnoEnergy CC Sweden Initiative

Enjoy the Workshop!

