KTH – Royal Institute of Technology, Stockholm, Sweden

PROGRAM

REV2010

International Conference on

Remote Engineering & Virtual Instrumentation

www.rev-conference.org/REV2010

June 29 – July 2, 2010

Stockholm, Sweden

In cooperation with:

Supported by:

REV2010 Program

10.00 – 13.30 Registration at the conference site, KTH main campus at Valhallavägen. Conference site: Osquldas väg 4.

Can be reached by subway, the read line direction "Mörby". Leave at station "Tekniska högskolan".

13.30 Common leaving for those attending the boat excursion to Birka (boat leaving at 14.30).

Central Stockholm and KTH main campus:
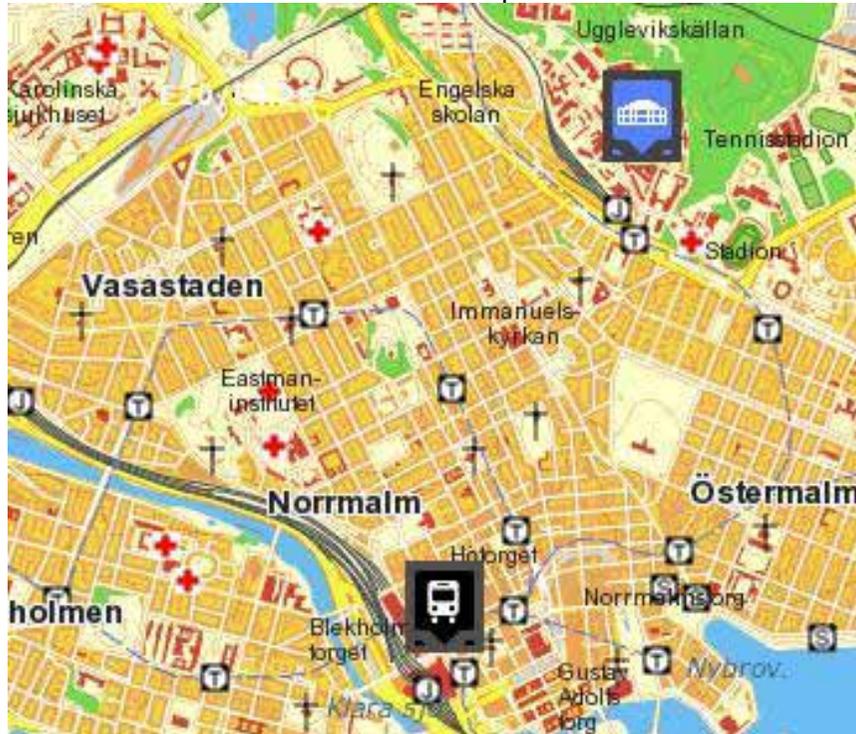
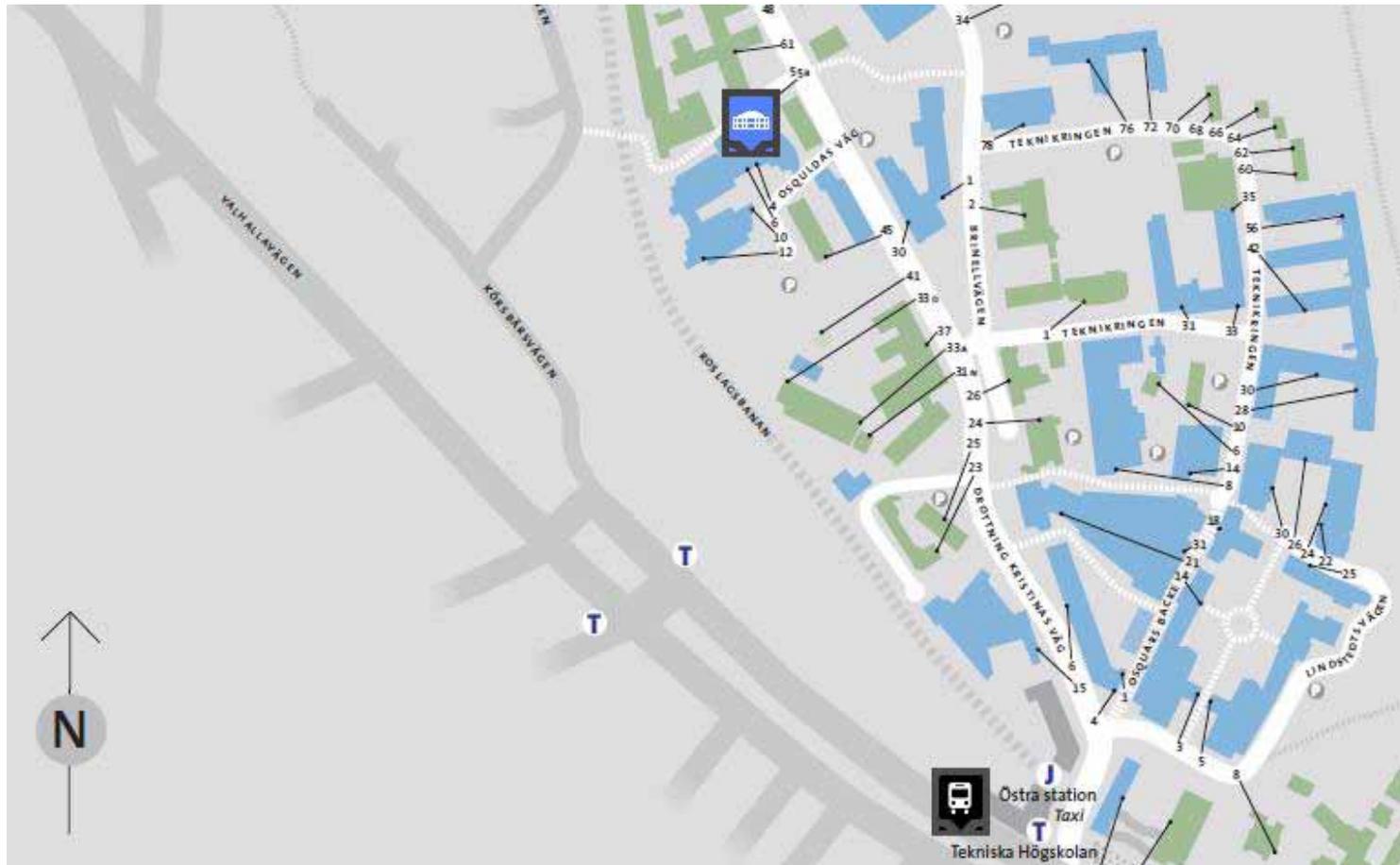

Conference place at KTH, Q-building, Osquldas väg 4

Stockholm City Terminal (arrival of buses from Arlanda airport) and Stockholm Central Station (arrival of trains from Arlanda airport)
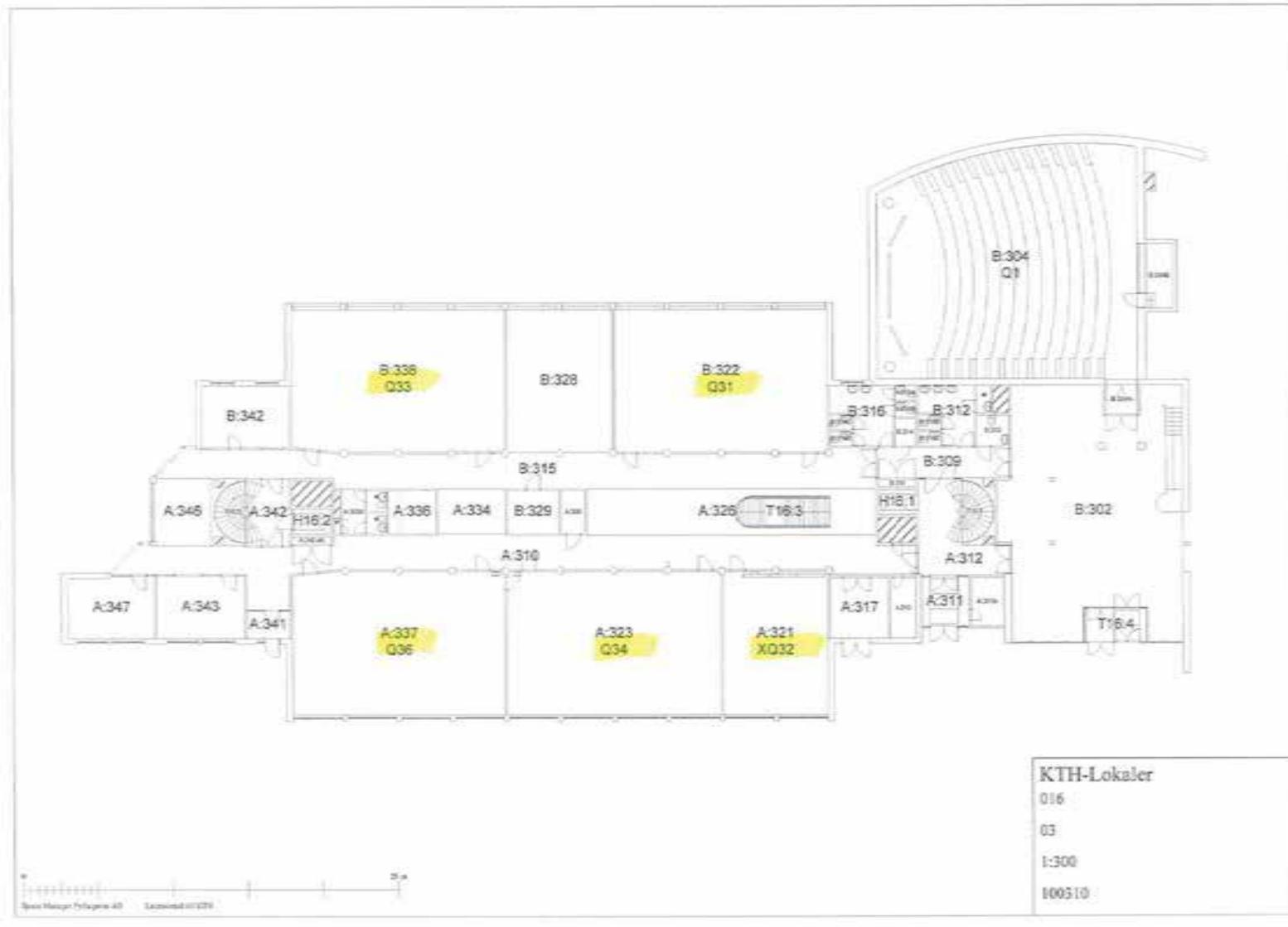
T Subway (tube)

J   Railroad

Magnification of conference place (at the top of the city map on the earlier page):

Conference localities at the ground floor at the Q house, Osquldas väg 4

KTH-Lokaler
016
03
1:300
100510

14.30 – 20.30 Social boat excursion to Birka on Björkö in lake Mälaren [price: SEK 750 (SEK 600 for boat + SEK 150 for dinner) to be paid in cash at the registration or at the boat].

14.30 The boat "m/s Evert Taube" leaves from Stadshuskajen (adjacent to Stockholm's stadshus, Stockholm Town Hall).

In case of being late phone: +46 70 752 84 76

It may be a little tricky to come there; so be in good time.

The best is to start at the Central Railroad Station, walking southwards below traffic bridges and small tunnels and the pass the street on the photo to the left. Stockholm Town Hall is in the background and quay to the very left. You may ask for the way at the Central Station (or better join the common leaving at the registration place at 13.30).

Wednesday, 30 June 2010

08.00 – 	Registration at the conference site, coffee, main campus at Valhallavägen. Conference site: Osquldas väg 4 (map at page #2).

The conference place is concentrated inside Osquldas väg 4; direct after entering the main entrance there is the registration desk; straight forward after entering is Room Q1; the glass doors to the left lead to Q31, Q33, and Q34; to the right is the cafeteria where the lunches will be served.

Tonight at 19.00 the City Council of Stockholm is the host for a reception at Stockholm City Hall. Bus leaves the conference site at 18.30.

09.30 – 11.00 **Keynote Session 1**, Room: Q1, Chair: Michael Auer, President IAOE

09.30 	**Conference opening**. Prof. Peter Gudmundson. President KTH

09.35 	Prof. Anders Flodström, Chancellor of Swedish Universities: **"The Global University"**

10.15 	Prof. Anette Kolmos, President SEFI: **"Complex Technological Systems and Problem and Project Based Learning"**

11.00 Coffee.

11.30 – 13.00 **Parallel Session 1, Parallel Session 2, Tutorial 1, and Agilent Poster Session**

Registered presenter is underlined; # gives the number of the paper and the paper title links lead to the abstract of the corresponding paper. Many papers cover several topics; at the end of this program is a list of the topics and which papers covers those topics.

Please, observe that to open a link to an abstract you, at present, must log in to your Conftool account.

Tutorial, Workshop, Demonstration, and Thematic Session headlines are linked to descriptions and documents about those sections.

Parallel Session 1	**Parallel Session 2**	**Tutorial 1**
11.30 – 13.00 Room: Q31, Chair: Kristian Nilsson	11.30 – 13.00 Room Q33, Chair: Jörgen Gustafsson	11.30 – 13.00 Room: Q34
Topic E: Networking and Grid Technologies Christian Maier, Michael Niederstätter, Michael Auer, Danilo Garbi Zutin Lab2go – a Semantic Framework to Exchange and Publish Online Laboratories (#128) **Topic F: Mixed Reality Environments** Javier García Zubia, Jaime Irurzun, Ignacio Angulo, Pablo Orduña, Jonathan Ruiz-de-Garibay, Unai Hernández, Manuel Castro Developing a Second-Life-based Remote Lab over the WebLab-Deusto architecture (#134) Frederico Menine Schaf, Carlos Eduardo Pereira, Dieter Müller Collaborative Environment Architecture Proposal: A study of virtual environments for learning purposes in control engineering (#141)	**Topic J: Present Future Trends Including Social and Educational Aspects** Roderval Marcelino, Gustavo Alves, Juarez Silva, Lírio Schaeffer An Extended Immersive Learning Environment for Solid Mechanics Theory and Demonstration(s) (#112) Steven W Tuttle, David B Lowe, Stephen J Murray, Michel de la Villefromoy Towards a Framework for Supporting Remote Laboratory Adoption Decision-Making by Teacher-Academics (#145) Thorsten Kostulski, Steve Murray The National Survey into Engineering Laboratory Resource Sharing at Australian Universities – Preliminary Results (#149) Roger James Watson, Andreas Braumann, Aaron Coble, Thieme Hennis, Markus Kraft Sustainable Management of Industrial Collaborations in E-Lab Learning (#156)	**Quick and Easy Instrument Automation with Agilent VEE (#173)** Jawson Saw, Ghislain Tietcheu Agilent Technologies, Malaysia Göran Johnsson GJC Test & Software, Sweden 11.30 – 15.30 **Agilent Poster Session** Room: Open area, continuously Introducing Agilent U8903A Audio Analyzer (#170) Surround yourself with safety. Not to mention greater accuracy (#172) Agilent's Teachning Solution Helps You Save Courseware Development Time (#174)

13.00 – 14.00 Lunch

14.00 – 14.40 **Keynote session 2**, Room Q1, Chair: Andreas Pester

14.00 Prof. Torsten Fransson, KTH: **"Energy Education in a Global Perspective"**

14.45 – 15.30 **Parallel Session 3, Parallel Session 4, Demonstration 1, and Poster Session**

Parallel Session 3	**Parallel Session 4**	**Demonstration 1**	**Poster Session**
14.45 – 15.30 Room: Q31, Chair: Christian Maier	14.45 – 15.30 Room: Q33, Chair: Christian Pleul	14.45 – 15.30 Room: Q34	14.45 – 15.30 Room: Open area, continuously
Topic A: Virtual and Remote Laboratories Javier García Zubia, Andreas Pester, Pablo Orduna, Jaime Iruzun, Jose Maria Gonzalez, Ignacio Angulo, Unai Hernandez, Lui Rodriguez One Lesson from TARET: What is expected from a remote lab? (#108) Diana Vasilica Pop Remote Design and Test of Digital Systems with the Altera MAX CPLD (#111) J. M. Martins Ferreira, Americo F. S. Dias, Paulo J. S. Sousa, Zorica Nedic, Jan Machotka, Andrew Nafalski, Ozdemir Gol Low-cost workbench client / server cores for remote experiments in electronics (#113)	**Topic G: Demands in Education and Training** Ananda Maiti Automatic Evaluation of Student's Performance in Online Laboratories (#131) Kemi Jona, Ricarose Roque, Julia Skolnik, David Uttal, David Rapp Are Remote Labs Worth The Cost? Insights From a Study of Student Perceptions of Remote Labs (#139) Vladimir Miodrag Cvjetkovic, Milan Matijevic Remote laboratory for thermal distributed system testing (#147)	**Surround yourself with safety. Not to mention greater accuracy** (#171) Agilent Technologies Demonstration Jawson Saw, Ghislain Tietcheu Agilent Technologies, Malaysia	Jiri Pechousek, Roman Prochazka, Michal Juhanak Remote monitoring system for CompactRIO-based real-time PID controller (#106) Ali Akbar Shaikhi Fini, Mitra Yousefzadeh Virtual learning in Iran Universities (#122) Issa Mahmoud Shehabat Case Study: Quick Development Of E-Learning Course (#155) (Full paper, not in the CD)

15.30 Coffee

16.00 – 18.15 **Thematic Session 1, Workshop 1, Workshop 2 and IAOE EC Meeting**

Thematic Session 1	**Workshop 1**	**Workshop 2**	**IAOE EC Meeting (no public event)**
16.00 – 18.15 Room: Q1	16.00 – 18.15 Room: Q31	16.00 – 18.15 Room: Q33	16.00 – 18.15 Room: Q34
Collaboration in Remote Laboratories in Engineering and Technology Education (#109) Session organisers: Andrew Nafalski, Zorica Nedic, Jan Machotka, Özdemir Göl University of South Australia, Australia Jose M. Martins Ferreira University of Porto, Portugal Ingvar Gustavsson Blekinge Institute of Technology, Sweden	**Remote Laboratories as Learning Objects – Building and Publishing of Labs on the Lila Portal** (#136) Thomas Richter, David Boehringer University of Stuttgart, Lila Consortium, Germany	**Remote Experiments in Natural Sciences Education by Integrated e-Learning** (#159) Franz Schauer Tomas Bata University in Zin, Czech republic Miroslava Ožvoldová Trnava University, Slovakia	

18.30 Buss from KTH REV Conference to Stockholm City Hall   19.00 City Council of Stockholm is the host for the reception at Stockholm City Hall

Thursday, 1 July 2010

08.30 –   Registration at the conference site

08.45 – 09.45 **Keynote session 3**, Room Q1, Chair: Doru Ursutiu

08.45   Prof. Ingvar Gustavsson, Blekinge Institute of Technology: **"Engineering Education Challenges and VISIR"**

09.30   Ioannis Sagias; EU DG INFSO Unit F3 GÉANT and e-Infrastructure: **"e-Infrastructures and Virtualisation, Remote Instrumentation"**

09.45 – 11.15 **Parallel Session 5, Parallel Session 6, and Workshop 3**

Parallel Session 5	Parallel Session 6	**Workshop 3**
09.45 – 11.15 Room: Q31, Chair: J. M. Martins Ferreira	09.45 – 11.15 Room: Q33, Chair: Martyn Cooper	09.45 – 11.15 Room: Q34
Topic A: Virtual and Remote Laboratories Boris Krastev, David Lowe Release Planning - Using Feedback to Adapt Remote Laboratory Release Cycles (#116) Cornel Samoila, Doru Ursutiu, Petru Cotfas, Daniel Cotfas Genetic Algorithms and Distributed Instrumentation as a Tool for Optimization in the "Search Space" (#117) Amanda Maiti Time Scheduling Schemes for Online Laboratory Management Systems (#118) Danilo Garbi Zutin, Michael Auer A Flexible Experimentation Hardware Platform for the NI-ELVIS (#126)	**Topic B: Remote Process visualization and Virtual Instrumentation** Karsten Henke, Steffen Ostendorff, Thomas Volkert, Andreas Mitschele-Thiel A Universal Communication Framework and Navigation Control Software for Mobile Prototyping Platforms (#105) Dragos Iordache, Doru Ursutiu, Matei Dragu, Petru Cotfas, Daniel Cotfas, Cornel Samoila A Cross Platform Generated WEB Interface for a Tag4M Cloud Instrument (#107) Iosif Olah, Cristea Pal, Octavian Costel Vornicu, Nicoleta Stefania Hulea, Lucian Mastacan, Tiberiu Pal Virtual Instrumentation for Plant Refurbishment (#120)	**How to open a local electronics laboratory for remote access** (#152) A workshop on the VISIR Open Laboratory Platform and an invitation to join the VISIR Community Ingvar Gustavsson, Blekinge Institute of Technology, Sweden National Instruments

11.15 Coffee

11.45 – 13.15 **Parallel Session 7, Parallel Session 8, and Workshop 3**

Parallel Session 7	Parallel Session 8	Workshop 3 (continues)
11.45 – 13.15 Room: Q31, Chair: Ian Grout	11.45 – 13.15 Room Q33, Chair: Danilo Garbi Zutin	11.45 – 13.15 Room Q34
Topic C: Remote Control and Measurement Technologies	**Topic M: Innovative Organizational and Educational Concepts for Remote Engineering**	**How to open a local electronics laboratory for remote access** (#152)
Reihard Langmann	Claudius Terkowsky, Isa Jahnke, Christian Pleul né: Burkhardt, Roberto Licari, Per Johannssen, Gianluca Buffa, Matthias Heiner, Livan Fratini, Ernesto Lo Valvo, Mihai Nicolescu, Johannes Wildt, A. Erman Tekkaya	A workshop on the VISIR Open Laboratory Platform and an invitation to join the VISIR Community
Distributed Web-based Control System (#102)		
Paolo Buschiazzo, Davide Leoncini, Rodolfo Zunino, Anna Marina Scapolla	Developing Tele-Operated Laboratories for Manufacturing Engineering Education: Platform for E-Learning and Telemetric Experimentation (PeTEX) (#119)	Ingvar Gustavsson, Blekinge Institute of Technology, Sweden
A Web-Based Laboratory for Digital Signal Processing (#132)		National Instruments
Udo Johann Strasilla, Sotoudeh Hamedi-Hagh	Abul K. Azad	
Remote Design, Testing and Evaluation of an Integrated Circuit Differential Amplifier Experiment (#162)	Internet Accessible Remote Laboratory: Are We Moving Too Fast? (#123)	
Michal Sedlák	Cosmas Mwikirize, Arthur Asiimwe Tumusiime, Paul Isaac Musasizi, Sandy Stevens Tickodri-Togboa, Andrew Katumba, Julius Butime	
Control of Educational Plants over USB in GNU/Linux (#165)	New Dimensions in Teaching Digital Electronics: A Multimode Laboratory Based on NI ELVIS IITM, LabVIEW and Multisim (#143)	

13.15 – 14.15 Lunch

14.15 – 14.55 **Keynote session 4**, Room Q1, Chair: Anders Ambrén

14.15   Mats Erixon, Media System Specialist, KTH-CSC Advanced Media Technology:
        "Technical Challenges and Ongoing Development; Experiences of Extreme Low Latency Visual Communication"

15.00 – 16.30 **Parallel Session 9, Parallel Session 10, and Thematic Session 2**

| **Parallel Session 9** 15.00 – 16.30 Room: Q31, Chair: Franz Schauer	**Parallel Session 10** 15.00 – 16.30 Room: Q33, Chair: David Lowe	**Thematic Session 2** 15.00 – 16.30 Room: Q34
Topic A: Virtual and Remote Laboratories Michael Niederstätter, Thomas Klinger, Danilo Garbi Zutin An Image Processing Online Laboratory within the ISA architecture (#127) Doru Ursutiu, Cornel Samoila, Petru Cotfas, Daniel Cotfas Fixed Magnetic Field Virtual Instrument for Hall Effect Measurement (#130) Stephen John Murray, Euan Lindsay, David Brian Lowe, Steven Walter Tuttle Derivation of Suitability Metrics for Remote Access Mode Experiments (#142) Michael Callaghan, Kerri McCusker, Julio Losada Lopez, Jim Harkin, Shane Wilson Hybrid Remote/Virtual Laboratories with Virtual Learning Environment Integration (#148)	**Topic D: Online Engineering** Ian Grout, Alexandre César Rodrigues da Silva A Mobile Remote Laboratory Experiment for Anywhere-Anytime Access (#100) Athanasios Kalantzopoulos, Dimitros Karageorgopoulos, Enangelos Zigouris Remotely Controlled Real-Time DSP Applications through Customized GUIs based on LabVIEW (#135) Katarina Zakova Online Modeling of RLC Circuits (#160) Jim Henry, Serge Zacher Description of the remote UTC-WebLaboratory for engineering education and interactive demonstration by online experiments (#140)	**The VISIR Open Lab Platform** (#124) Session organisers: Ingvar Gustavsson, Lena Claesson Blekinge Institute of Technology, Sweden Thomas Fischer FH Campus Wien Unai Hernandez University of Deusto, Spain

16.30 Coffee

17.00 – 18.30 **Parallel Session 11, Workshop 4, and Demonstration 2**

| **Parallel Session 11**
17.00 – 18.30 Room: Q31, Chair: Cristea Pal

Topic I: Support Collaborative Work in Virtual Engineering Environments
Eugenia Erica Vera Cervantes, Guillermo de Ita Luna
Design Patterns for Developing Constructivist Multimedia Software for Teaching Subjects in Computer Science (#138)

Amir Mujkanovic, David Lowe
Policy-Based Remote Laboratory Multi-User Access Management (#114)

AntonellaLongo, Mario Bochicchio
Adding Collaborative Remote Lab Activities to Moodle (#151) | **Workshop 4**
17.00 – 18.30 Room: Q33

EUROMOTE II Preparation Workshop (#104)

Reinhard Langmann
Düsseldorf University of Applied Sciences, Germany | **Demonstration 2**
17.00 – 18.30 Room: Q34

Demonstration of LTE Measurement using Agilent P-series power meter and sensor (#169)

Agilent Technologies Demonstration

Jawson Saw, Ghislain Tietcheu
Agilent Technologies, Malaysia |

18.45 Buss from KTH REV to Conference Dinner at the Vasa Museum   19.30 Twilight Conference Dinner at the Vasa Museum
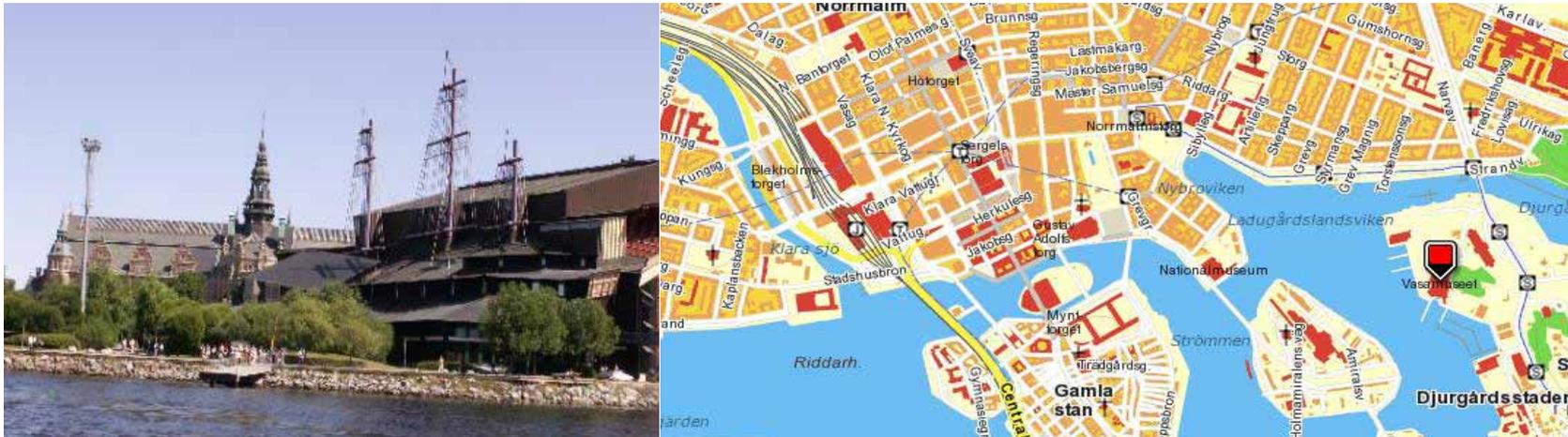
Friday, 2 July 2010

09.00 – Registration at the conference site

09:00-10:00: IAOE Annual General Meeting (for members only) Room: Q34 or Q1

10.00 – 10.45 **Keynote session 5**, Room Q1, Chair: Göran Karlsson

10.00 Prof. Ambjörn Naeve, KTH Knowledge Management Research Group and Uppsala University Learning Lab: **"First Class Mathematics - The Technology Enhanced Online Mathematics Rehabilitation Clinic"**

10.45 – 11.15 Coffee

11.45 – 13.30 **Parallel Session 12, Parallel Session 13, and Demonstration 3**

Parallel Session 12	Parallel Session 13	Demonstration 3
11.45 – 13.30 Room: Q31, Chair: Reinhard Langmann	11.45 – 13.30 Room: Q33, Chair: Andrew Nafalski	11.45 – 13.30 Room: Q34
Topic H: Telerobotics and Teleprescence Muhammad Iftikhar, Osman Ali, Mohammad S. Arifianto, Saima Masood Sikuati and Kota Kinabalu Informatics and Teleclinic (SAKIT) , Model Proposal (#103) Javier Garcia-Zubia, Ivan Trueba WEB 2.0 pharmacy Robots (#110) **Topic A: Virtual and Remote Laboratories** C.M.Markan, Anil Bhatnagar, Amol Gupta A Remote Triggered Electronics Laboratory based on LXI methodology (#150) Andrew Nafalski, Ozdemir Gol, Zorica Nedic, Jan Machotka, Jose M. Ferreira, Ingvar Gustavson Experiences with Remote Laboratories (#154) Miroslava Ožvoldová, Franz Schauer, Peter Cernansky, Zaneta Gerhatova, Lukas Tkac, Miroslav Beno 1st Slovak Internet Natural Sciences Remote e-Laboratory (INRe-L) (#161) Soami P.Satsangee, Rehan Mohd., Ratananjali Gandhi Remote Analytical Laboratory (#164)	**Topic K: Human Computer Interfaces, Usability, and Reusability** Riko Safaric, Gregor Skorc, Simon Zapusek Communication between Macro and Nano Worlds (#163) Martyn Cooper Remote Laboratories Extending Access to Science and Engineering Curricular for Disabled Students (#166) **Topic L: Standards and Standardization Proposals** Herbert Yeung, David Lowe An Investigation into Supporting Interoperability of Remote Laboratories (#115) Ian Grout, Alexandre César Rodrigues da Silva Web-Based Tool for Remote Laboratory Structure Descriptions (#129)	**Description of the Remote UTC-WebLaboratory for Engineering Education and Interactive Demonstration by Online Experiments (#140)** Lab description Jim Henry University at Tenessee at Chattanooga, USA Serge Zacher University of Applied Sciences RheinMain, Rüsselheim, Germany

13:30-13:45 **Closing session, Best paper award.** Room: Q1

13.45 Farewell coffee

Topics	Papers; registered topics
	100 108 111 112 113 114 115 116 117 118 119 126 127 129
A Virtual and Remote Laboratories	130 131 132 134 135 137 139 142 143 147 148 149 150 151
	154 156 160 161 162 163 164 166
B Remote Process Visualization and Virtual Instrumentation	105 107 120 156
C Remote Control and Measurement Technologies	102 105 107 117 126 132 135 147 162 165
D Online Engineering	100 105 107 119 135 137 141 143 145 160 162
E Networking and Grid technologies	128
F Mixed Reality Environments	134 141
G Demands in Education and Training	123 131 139 145 147 166
H Telerobotics and Teleprescence	103 110
I Support of Collaborative Work in Virtual Engineering Environments	114 138 141 151
J Present and Future Trends Including Social and Educational Aspects	112 145 149 156
K Human Computer Interfaces, Usability, Reusability, Accessibility	163 166
L Standards and Standardization Proposals	115 129
M Innovative Organizational and Educational Concepts for Remote Engineering	112 119 123 128 137 139 143 149

Topics	Papers; determined topic for parallel session
	108 111 113 116 117 118 126 127 130 142 148 150 154 161
A Virtual and Remote Laboratories	164
B Remote Process Visualization and Virtual Instrumentation	105 107 120
C Remote Control and Measurement Technologies	102 132 162 165
D Online Engineering	100 135 160
E Networking and Grid technologies	128
F Mixed Reality Environments	134 141
G Demands in Education and Training	131 139 147
H Telerobotics and Teleprescence	103 110
I Support of Collaborative Work in Virtual Engineering Environments	114 138 151
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K Human Computer Interfaces, Usability, Reusability, Accessibility	163 166
L Standards and Standardization Proposals	115 129

Poster topics

#106: Jiri Pechousek, Roman Prochazka, Michal Juhanak: Remote monitoring system for CompactRIO-based real-time PID controller
[Remote control and measurement technologies (C), Applications and experiences, Remote process visualization and virtual Instrumentation (B)]

#122: Ali Akbar Shaikhi Fini Mitra Yousefzadeh: Virtual learning in Iran Universities
[Online engineering (D), e-learning, b-learning, m-learning and ODL)]

#155: Issa Mahmoud Shehabat: Case Study: Quick Development
[e-learning, b-learning, m-learning and ODL]

#170: Agilent poster: Introducing Agilent U8903A Audio Analyzer
[Products]

#172: Agilent poster: Surround yourself with safety. Not to mention greater accuracy
[Remote control and measurement technologies (C), Products]

#174: Agilent poster: Agilent's Teachning Solution Helps You Save Courseware Development Time
[Demands in education and training (G)]

Tutorial topics

#173: **Quick and Easy Instrument Automation with Agilent VEE**, Jawson Saw, Ghislain Tietcheu , Agilent Technologies, Malaysia
[Remote control and measurement technologies (C), e-learning, b-learning, m-learning and ODL]

Demonstration topics

#140: **Description of the Remote UTC-WebLaboratory   for Engineering Education and Interactive Demonstration by Online Experiments**,
Jim Henry, University at Tenessee at Chattanooga, USA; Serge Zacher, University of Applied Sciences RheinMain, Rüsselheim, Germany
[Virtual and remote laboratories (A), Online engineering (D), Demands in education and training(G)]   Lab descritption

#169: **Demonstration of LTE Measurement using Agilent P-series power meter and sensor**, Jawson Saw, Ghislain Tietcheu , Agilent Technologies, Malaysia
[Present and future trends including social and educational aspects (J), Applications and experiences]

#171: **Surround yourself with safety. Not to mention greater accuracy**, Jawson Saw, Ghislain Tietcheu , Agilent Technologies, Malaysia
[Remote control and measurement technologies (C)], Products]

Workshop topics

#104: EUROMOTE II Preparation Workshop, Reinhard Langmann, Düsseldorf University of Applied Sciences, Germany
[Innovative organizational and educational concepts for remote engineering (M)]

#136: **Remote Laboratories as Learning Objects – Building and Publishing of Labs on the Lila Portal**,
Thomas Richter, David Boehringer, University of Stuttgart, Lila Consortium, Germany
[Virtual and remote laboratories (A), Online engineering (D), Applications and experiences]

#152: **How to open a local electronics laboratory for remote access**, Ingvar Gustavsson, Blekinge Institute of Technology, Sweden; National Instruments
[Virtual and remote laboratories (A), Remote control and measurement technologies (C), Online engineering (D)]

#159: **Remote Experiments in Natural Sciences Education by Integrated e-Learning,**
Franz Schaeur, Tomas Bata University in Zin, Czech republic; Miroslava Ozvoldova, Trnava University, Slovakia
[e-learning, b-learning, m-learning and ODL]

Thematic Sessions' topics

#109: Collaboration in Remote Laboratories in Engineering and Technology Education
Session organizers: Andrew Nafalski, Zorica Nedic, Jan Machotka,and Özdemir Göl, University of South Australia¸ Jose M. Martins Ferreira, University of Porto, Portugal; and Ingvar Gustavsson, Blekinge Institute of Technology, Sweden
[Virtual and remote laboratories (A)]

#124: The VISIR Open Lab Platform
Papers at this session (abstracts): 125, 133, 146, 167
Session organizers: Ingvar Gustavsson and Lena Claesson, Blekinge Institute of Technology, Sweden; Thomas Fischer, FH Campus, Wien; and Unai Hernandez, University of Deusto, Spain
[Virtual and remote laboratories (A)]