

# THE EIGHTH POSTGRADUATE ELECTRICAL ENGINEERING & COMPUTING SYMPOSIUM

## PEECS 2007



**Curtin University of Technology**  
**7<sup>th</sup> November, 2007**

Curtin University of Technology, Perth, Western Australia, 2007

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ISBN:

## **Message from the Chair**

On behalf of the organizing committee I would like to welcome you all to the Eighth Postgraduate Electrical Engineering and Computing Symposium, PEECS/2007.

This symposium has been running for the seventh year organized by one of the four universities in Western Australia. It aims to prepare a platform for the cooperation for Western Australian postgraduate students conducting research in Electrical Engineering and Computing. This symposium creates an opportunity for all of us to interact with each other and to discover what others are doing in their research endeavors. We believe that activities such as this one act as catalyst to bring young researchers together to exchange ideas and explore common grounds so that ideas can later be followed up in a rigorous and cooperative manner.

This symposium is financed by various departments in WA universities. We would like to acknowledge the following Schools/departments for their corporation and financial support: the Department of Electrical and Computer Engineering, and the Department of Computing at the Curtin University of Technology, the Department of Electrical and Computer Engineering of University of Western Australia, the School of Information Technology at Murdoch University, the School of Engineering and Mathematics, and the School of Computer and Information Science of Edith Cowan University. My thanks are extended to the Institute of Electrical and Electronics Engineers (IEEE) Western Australian Section, Western Australian Telecommunication Institute of UWA (WATRI) and Instrumentation Research Group of Curtin University for providing prizes.

Without the endless efforts of the committee members, this symposium could have never taken place. I would like to thank all the representatives of participating Departments and Schools, particularly to Kevin Wong, Lance Fung, Farrid Boussaid, Peng Lam, Sieteng Soh, Stefan Lachowicz, and King Sun Chan. They all deserve special acknowledgement for their professional conduct in making this event successful.

The symposium program is distributed. We will adhere strictly to this program. Prizes for Best Paper, Best Presentation and Best Poster paper will be awarded at the Conference Dinner.

Halit Eren (Chair)  
November, 2007

## **ORGANISING COMMITTEE**

Dr Halit Eren, Curtin University of Technology (Chair)

Dr King Sun Chan, Curtin University of Technology

Dr Sieteng Soh, Curtin University of Technology

Associate Professor Peng Lam, Edith Cowan University

Dr Stefan Lachowicz, Edith Cowan University

Dr Kevin Wong, Murdoch University

Dr Farid Boussaid, University of Western Australia

## **PRIZES**

IEEE – Section 10

Western Australian Telecommunications Research Institute (WATRI)

Instrumentation Research Group, Curtin University

PEECS 2007 Program  
7<sup>th</sup> November 2007

9:00	Welcome - General Chair, Dr Halit Eren Curtin University of Technology Venue: 201-412
9:10	Keynote Speaker – Professor Syed Islam, Department of Electrical and Computer Engineering Curtin University of Technology
10:00	Morning Tea
10:20	Parallel Sessions A1 and B1 Session A1 (201-412) Session B1 (201-413)
12:00	Lunch Foyer of Building 201
13:00	Sessions A2 and B2 Session A2 (201-412) Session B2 (201-413)
14:20	Afternoon Tea
	POSTER SESSION
15:00	Sessions A3 and B3 Session A3 (201-412) Session B3 (201-413)
18:30	Dinner Curtin on the Park (Curtin Club) <b>Building 104</b>

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## Keynote Address

### **Electrical Power Engineering - Challenges and Opportunities in Research and Developments**

**Professor Syed Islam**  
**Curtin University of Technology**  
**Department of Electrical and Computer Engineering**

Electrical Power Engineering is a very important discipline responsible for education, training, research and developments in the generation, transmission, distribution and utilisation of electrical power. Investments in the power industry will easily exceed many Trillions of dollars worldwide and is growing. In Australia alone the power industry is worth over \$100 billion and is estimated to invest another \$10 billion in the next five years. In Western Australia, the power industry is growing by over \$1 billion per year. The power industry in Australia employs well over 5000 people and is estimated to employ 200 new electrical engineering graduates per year. The aging electricity industry asset, the push toward renewable energy, energy efficiency, the deregulation of the electricity industry, quality of supply poses many challenges and opportunities for research and developments in power engineering. In Western Australia, the resources boom in the state's north and unprecedented demand in the housing and retail sectors thus driving the electricity industry to grow at a much faster rate than the rest of Australia. Majority of Australia's power generation comes from coal and with it the cost of greenhouse emission. There is a major push to generate power from clean coal technologies, renewable energy and perhaps Nuclear power. Each of these presents with huge opportunities in research and development. This talk will cover some of the contemporary research topics in power engineering and opportunities in Australia and elsewhere in the World.

#### **About the Speaker**

**Syed Islam** (S'81, M, 83, SM'93) received the B.Sc. degree in electrical power engineering from Bangladesh University of Engineering and Technology, Bangladesh in 1979, the M.Sc. and PhD degree in electrical power engineering from the King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia, in 1983, and 1988 respectively. He is currently the Chair Professor in Electrical Power Engineering and Head of Department of Electrical and Computer Engineering at Curtin University of Technology, Perth, Australia. Syed Islam received the IEEE T Burke Haye's Faculty Recognition award in 2000. He has published over 150 technical papers in his area of his expertise. His research interests are in Condition Monitoring of Transformers, Wind Energy Conversion, and Power Systems. He has been a keynote speaker and invited speaker at many international workshops and conferences. He is the Vice Chair of the Australasian Committee for Power Engineering (ACPE) and a member of the steering committee of the Australian Power Institute. He is the foundation Education Director of the Australian Power Academy. Syed Islam is the General Chair of the Australasian Universities Power Engineering Conference to be held in Curtin in December 2007. He is a Fellow of the Engineers Australia, a Senior Member of the IEEE IAS, PES and DEIS, a Fellow of the IEE and a chartered engineer in the United Kingdom. Syed Islam is regular reviewer for the IEEE Trans. on Energy Conversion and Power Delivery, IEE Proceedings, Electric Power Systems Research and the Australian Research Council.