

Saikat Chakrabarti

Lecturer

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EDUCATION

- Ph.D., Electrical Engineering, Memorial University of Newfoundland, Canada, 2006.
- M.E., Electrical Engineering, Jadavpur University, India, 2000.
- B.E., Electrical Engineering, National Institute of Technology, Durgapur, India, 1997.

RESEARCH INTERESTS

- Power system dynamics and stability.
- Application of synchronized measurement technology to power systems.
- Application of computational intelligence to power system problems.
- Power system state estimation.
- Power system reliability.
- Chaos and non-linear dynamics in power systems and power electronics.

PROFESSIONAL AND RESEARCH EXPERIENCE

- **Lecturer** February 2009 – present
Department of Electrical Engineering, Faculty of Built Environment and Engineering,
Queensland University of Technology, Brisbane, Australia
- **Research Associate** August 2008 – January 2009
Department of Electrical Engineering, Faculty of Built Environment and Engineering,
Queensland University of Technology, Brisbane, Australia
- **Special Scientist** October 2006 – July, 2008
Department of Electrical and Computer Engineering, University of Cyprus, Cyprus
- **Phd Candidate & Teaching Assistant** September 2002 – September 2006
Faculty of Engineering and Applied Science, Memorial University of Newfoundland, St.
John's, Canada
- **Scientific officer** April 2000 – June 2002
Electronics Division, Bhabha Atomic Research Centre, Department of Atomic Energy, India
- **Marketing & commissioning engineer** September 1997 – March 1998
Relay and Control Panels Division, Asea Brown Boveri (ABB) Limited, India

PUBLICATIONS

Book

1. S. Chakrabarti, *ANN for Voltage Stability Monitoring and Enhancement*, VDM Verlag Dr. Muller, Saarbrücken, Germany, 2008.

Journals/Magazines

1. S. Chakrabarti, "Static load modelling and voltage stability indices," *International Journal of Power and Energy Systems*, Vol. 29, No. 3, 2009.
2. S. Chakrabarti, E. Kyriakides, "PMU measurement uncertainty considerations in WLS state estimation," *IEEE Transactions on Power Systems*, Vol. 24, No. 2, May, 2009.
3. S. Chakrabarti, E. Kyriakides, T. Bi, D. Cai, and V. Terzija, "Measurements get together," *IEEE Power and Energy Magazine*, Jan.-Feb. 2009.
4. S. Chakrabarti, E. Kyriakides, and D. G. Eliades, "Placement of synchronized measurements for power system observability," *IEEE Transactions on Power Delivery*, Vol. 24, No. 1, Jan. 2009, pp. 12-19.
5. S. Chakrabarti, E. Kyriakides, M. Albu, "Uncertainty in power system state variables obtained through synchronized measurements," accepted in July, 2008, for publication in *IEEE Transactions on Instrumentation and Measurement*.
6. S. Chakrabarti, B. Jeyasurya, "Generation rescheduling using ANN-based computation of parameter sensitivities of the voltage stability margin," *Engineering Applications of Artificial Intelligence*, 21, 2008, pp. 1164-1169.
7. S. Chakrabarti, E. Kyriakides, "Optimal placement of phasor measurement units for power system observability," *IEEE Transactions on Power Systems*, Vol. 23, No. 3. Aug. 2008, pp. 1433-1440.
8. S. Chakrabarti, "Voltage stability monitoring by artificial neural network using a regression-based feature selection method," *Expert Systems with Applications*, 35, 2008, pp. 1802-1808.
9. S. Chakrabarti, B. Jeyasurya, "Multicontingency voltage stability monitoring of a power system using an adaptive radial basis function network," *International Journal of Electric Power and Energy Systems*, Vol. 30, No. 1, Jan. 2008, pp. 1-7.
10. S. Chakrabarti, B. Jeyasurya, "An enhanced radial basis function network for voltage stability monitoring considering multiple contingencies," *Electric Power Systems Research*, Vol. 77, Issue 7, May 2007, pp. 780-787.

Conferences

1. S. Chakrabarti, E. Kyriakides, G. Valverde, and V. Terzija, "State estimation including synchronized measurements," accepted for publication in *PowerTech Conference*, Bucharest, Romania, 2009.
2. S. Chakrabarti, G. K. Venayagamoorthy, and E. Kyriakides, "PMU placement for power system observability using binary particle swarm optimization," *Australasian Universities Power Engineering Conference (AUPEC 2008)*, Sydney, Australia, December 2008.
3. S. Chakrabarti, E. Kyriakides, "Cost-Energy analysis and optimization of a hybrid energy system for a residence in Cyprus," *International Conference on Deregulated Electricity Market Issues in South-Eastern Europe (DEMSEE2008)*, Nicosia, Cyprus, September, 2008.

4. S. Chakrabarti, E. Kyriakides "Placement of phasor measurement units for state estimation with voltage stability considerations," *Australasian Universities Power Engineering Conference (AUPEC 2007)*, Perth, Australia, December 2007.
5. S. Chakrabarti, E. Kyriakides "Formulation of the PMU placement problem in an integer quadratic programming framework," *International Conference on Power Systems (ICPS 2007)*, Bangalore, India, December 2007.
6. S. Chakrabarti, D. Eliades, E. Kyriakides, and M. Albu "Measurement uncertainty considerations in optimal sensor deployment for state estimation," *IEEE Symposium on Intelligent Signal Processing (WISP 2007)*, Madrid, Spain, October, 2007.
7. S. Chakrabarti, E. Kyriakides, "Grid-connected hybrid energy system for a typical home in Cyprus," *Renewable Energy Sources and Energy Efficiency Conference*, September, 2007, Nicosia, Cyprus.
8. S. Chakrabarti, E. Kyriakides, "Optimal placement of phasor measurement units for state estimation," 7th *IASTED International Conference on Power and Energy Systems*, EuroPES 2007, Spain, August, 2007.
9. S. Chakrabarti, B. Jeyasurya, "Sensitivity-based generation rescheduling for multicontingency voltage stability enhancement," *IEEE PES 2006 General Meeting*, Quebec, Canada, June 18-22.
10. S. Chakrabarti, B. Jeyasurya, "Multicontingency voltage stability monitoring of power systems using radial basis function network," 13th *International Conference on Intelligent Systems Application to Power Systems*, Washington DC, USA, November 6-10, 2005.
11. S. Chakrabarti, B. Jeyasurya, "Sensitivity-based generation rescheduling for voltage stability enhancement," *IEEE PES General Meeting*, 12-16 June, San Francisco, California, USA, 2005.
12. B. Jeyasurya, S. Chakrabarti, "Blackout 2003: A case study on power system security," *IEEE NECEC Conference*, 2004, St. John's, Canada.
13. S. Chakrabarti, B. Jeyasurya, "Effect of load modeling on the performance of power system voltage stability indices," *IEEE NECEC Conference*, 2004, St. John's, Canada.
14. S. Chakrabarti, B. Jeyasurya, "On-line voltage stability monitoring using artificial neural network," *Large Engineering Systems Conference on Power Engineering*, Halifax, Canada, July 2004.
15. A. Manna, S. Chakrabarti, "A new computer controlled multi-channel high voltage supply system for GRACE instrumentation," *International Symposium on Gamma Ray Astrophysics Through Multiwavelength Experiments (GAME-2001)*, Mount Abu, India, March, 2001.
16. A. Manna, S. Chakrabarti, P. K. Mukherjee, "Computer controlled multi-channel high voltage supply system for GRACE instrumentation," *Proceedings of Symposium on Intelligent Nuclear Instrumentation*, Mumbai, India, 2001.
17. S. Chakrabarti, S. K. Goswami, S. Paul "Comparative study of three types of voltage stability indices," *National Power System Conference*, December 2000, Bangalore, India.

Papers submitted

1. R. Majumder, G. Ledwich, A. Ghosh, S. Chakrabarti, and F. Zare, “Droop control of converter interfaced micro sources in rural distributed generation,” submitted to *IEEE Transactions on Power Delivery* in April, 2009.

RESEARCH FUNDING

- Won the *Early Career Academic Recruitment and Development* (ECARD) funding of AU\$ 15,000 from Queensland University of Technology. This funding is intended to be used for developing research potential mainly in the areas of Synchronized Measurement Technology for Power Systems, and Distribution System Reliability Enhancement.
- Won the *Smart Systems Theme Funding for Early Career Researcher* of AU\$ 5,000 from the School of Engineering systems, Queensland University of Technology. This funding is intended to be used for purchasing a phasor measurement unit.

PROJECT PROPOSALS SUBMITTED

- *Real time monitoring, protection, and control of power systems using synchronized measurements*. Submitted to the Cyprus Research Promotion Foundation in 2008. The project budget was € 160000. Role: Co-chief Investigator. Participating organizations: University of Cyprus, Arizona State University, University of Manchester, and Electricity Authority of Cyprus.
The project was judged 2nd runner-up in the competition.
- *Synchronized Measurement Technology for Voltage Stability Monitoring and State Estimation of Power Systems*. Submitted to the Australian Research Council in 2009. The project budget is AU\$ 1083,281. Role: Co-chief Investigator.

PROFESSIONAL ACTIVITIES

- Member of the IEEE Working Group on State Estimation Algorithms.
- Reviewer of the IEEE Transactions on Energy Conversion.
- Reviewer of the IEEE Transactions on Power Systems.
- Reviewer of the IEEE Transactions on Power Delivery.
- Reviewer of the IEEE PES Letters.
- Member of the International Program Committee, IASTED Power and Energy Systems.
- Member of the Institute of Electrical and Electronic Engineers (IEEE) (S’05, M’06).
- Reviewer of the International Journal of Simulation Modelling Practice and Theory, Elsevier.
- Reviewer of the International Journal of Electric Power and Energy Systems, Elsevier.
- Reviewer of the Journal of Soft Computing, Springer.
- Member of the Editorial Board, International Journal on Power System Optimization.

SEMINARS AND PRESENTATIONS

- Power System State Estimation by Synchronized Measurement Technology, Invited talk in the Indian Institute of Science, Bangalore, India, December, 2007.
- Phasor Measurement Units for Power System State Estimation, University of Cyprus, Nicosia, Cyprus, October, 2007.
- Application of Artificial Neural Networks for Online Voltage Stability Monitoring of an Electric Power System, University of Cyprus, Nicosia, Cyprus, January, 2007.

AWARDS AND HONOURS

- Selected in **Leading Engineers of the World**, 2008, International Biographical Centre, Cambridge, England.
- Selected for the **Who's Who in the World**, 2009, Marquis, New Providence, NJ, USA.
- Chaired the session on “Power System Planning II” in the 7th IASTED International Conference on Power and Energy Systems, EuroPES 2007, Palma de Mallorca, Spain, August, 2007.
- Received the “**David Dunsiger Award for Excellence**” in graduate studies and research in 2007 from the Faculty of Engineering and Applied Science, Memorial University of Newfoundland, St. John's, Canada.
- Selected for the award, “**Fellow of the School of Graduate Studies**” for the year 2007 in the Memorial University of Newfoundland, St. John's, Canada.
- Graduate Fellowship and Departmental Scholarship from 2002 to 2006, for conducting research towards PhD degree in the Faculty of Engineering and Applied Science, Memorial University of Newfoundland, Canada.
- Held the post of the president of the Engineering Graduate Students Society (EGSS) from 2004 to 2005, in the Faculty of Engineering and Applied Science, Memorial University of Newfoundland.
- Graduate Scholarship from 1998 to 2000, for doing Masters Degree in Electrical Engineering in the Department of Electrical Engineering, Jadavpur University, Kolkata, India.

TRAINING

- Completed **Graduate Program in Teaching (GPT)** offered by the Instructional Development Office, Memorial University of Newfoundland, Canada.
- Completed the **Teaching Opportunities for Graduate Students (TOGA)** Level-2 training offered by the Instructional Development Office, Memorial University of Newfoundland, Canada.
- Training in **Nuclear Engineering** with detailed courses on reactor engineering, nuclear instrumentation and control, nuclear materials, high voltage engineering, and power plant operation and maintenance. Hands-on training on nuclear power plant operation was also provided.

- Forty days of in-depth training in different locations of **ABB, India**, on the manufacturing and maintenance of the entire range of ABB products including relays, circuit breakers, energy meters, CTs, PTs, transformers, turbines, LTCs, machines and other equipments.
- Condensed program in **General Management** in **Hindusthan Aeronautics Limited**, Bangalore, India, as a part of the management training offered by ABB.
- Training in the **Thermal Power Plant** of Durgapur Projects Limited, India. Learning overall operation of a thermal power plant and being familiar with the operation of boiler, turbine, generators, cooling towers and condensers.

COMPUTER SKILLS

- Programming languages: C, MATLAB, Simulink, FORTRAN, Pascal, Basic, Assembly Language.
- Others: DSA Tools (Powertech Lab), DIgSILENT, MS Office, PSPICE, Protel, PowerWorld, ETAP, Minitab, TOMLAB.

STUDENT ADVISING

- Supervising a group of six final year undergraduate students in Electrical Engineering, in the project entitled, “Solar energy based water pump”, sponsored by The Australian Power Institute.
- Supervising James Clark, Jason Leung, and Randika Siriwardana (final year project) in Queensland University of Technology: *Three stage solenoid accelerator*, Academic year 2009.
- Co-supervising Daniel Moller (final year project) in Queensland University of Technology: *Reliability performance of various 11 kV topologies*, Academic year 2009.
- Co-supervised Costas Constantinides (senior design project) in University of Cyprus: *Investigation of the effects of wind power penetration in an electric power transmission system*, academic year 2007-2008.

TEACHING

- Power systems and Machines. 3rd year undergraduate, Electrical Engineering.
- Advanced power system analysis. Final year undergraduate, Electrical Engineering.
- Industrial Electronics. Final year undergraduate, Electrical Engineering.
- Advanced Design and Professional Practice, Final year undergraduate, Electrical Engineering.