# Curriculum Vitae

## Kuntal Mandal, Ph.D.


## Personal Data

Address : Department of Electrical & Electronics Engineering, Room No – 05,
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Date of Birth : 11th December, 1980
Nationality : Indian


## Teaching Experiences

**February, 2017 - Present** Assistant Professor (Ad-hoc) at Department of Electrical and Electronics Engineering, National Institute of Technology Sikkim

**July 2007 - May 2011** Assisted in teaching and laboratory experiments at Indian Institute of Technology Kharagpur, India

**August, 2006 – July 2007** **Lecturer**, Department of Electrical Engineering, Future Institute of Engineering & Management (FIEM), Kolkata, West Bengal, India.

## Research Experiences

**June, 2012 – January, 2017** **Postdoctoral Researcher**, The King Abdulaziz University (KAU), Jeddah, Saudi Arabia and Indian Institute of Science Education and Research Kolkata (IISER Kolkata), India

**June 2014 – January, 2017**

Project's Title : Development of Control Strategies for Power Electronic Systems to Avoid Fast-Scale and Slow-Scale Instabilities.

Funded by : The NSTIP strategic technologies program in the Kingdom of Saudi Arabia – Project no. 12–ENE3049–03.

**Aug. 2013 – May 2014**

Project's Title : Ensuring Low Current Ripple in Power Converters for Renewable Energy and High Performance Applications.

Funded by : Deanship of Scientific Research (DSR), King Abdulaziz University, Jeddah, Saudi Arabia, Grant no. 3–125–1433–HiCi.

**June 2012 – July 2013**

Project's Title : Investigation into the Stability of Complex Power Electronic Converters in Renewable Energy Applications.

Funded by : Deanship of Scientific Research (DSR), King Abdulaziz University, Jeddah, Saudi Arabia, Grant No. 5–4–1432/HiCi.

## Professional Services

Member, Institute of Electrical and Electronics Engineers (IEEE) (membership number: 92270376)
Serving regularly as a reviewer for IEE IET Control Theory & Applications**,** IEEE Transactions on Circuits and Systems-I, IEEE Transactions on Power Electronics, IEEE Transactions on Industrial Electronics, IEE IET Power Electronics, International Journal of Bifurcation and Chaos**.**

## Education

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|---|---|
| July 2007 – July 2013 | Ph. D., Department of Electrical Engineering, Indian Institute of Technology Kharagpur (IIT-KGP), India<br>–Title of the Thesis: Dynamical Analysis of Resonant DC-DC Converters |
| Aug. 2004 – July 2006 | Master of Engineering, Jadavpur University, Kolkata, India<br>– Control System Engineering with First Class (CGPA- 8.39) |
| Aug. 1999 – July 2003 | Bachelor of Engineering, Jalpaiguri Government Engineering College, India<br>– Electrical Engineering with First Class (77.70%) |

## Notable Highlights

- Developed a **new generalized automated tool** for time-domain stability and bifurcation analysis as well as frequency-domain small-signal analysis for complex power electronic systems.
- Proposed and experimentally validated control methods for frequency and phase **synchronization of interconnected dc-dc converters**.
- Reported **different pathways to instabilities** from the desired stable behaviour for the first time in power electronic systems. Also proposed **control methods to avoid** or delay the instabilities for extending the stable region.
- Experienced in writing project proposals, assessment reports and manuscripts. Key member in three projects in Saudi Arabia.
- Strong ability to set up power electronic laboratory where fabrication of the circuit and its experimental validation will be done. (Basic Electronics Laboratory at IISER Kolkata)
- Visited **Centre for Research & Technology Hellas**, Thessaloniki, Greece and **Potsdam Institute for Climate Impact Research**, Potsdam, Germany in July 2015 for research discussion and various possible areas of collaboration in future.
- Participated and **presented papers** in IEEE international conferences ISCAS2012 (Seoul, South Korea, May 2012), ISCAS2013 (Beijing, China, May 2013), AANS2014 (Como, Italy, September 2014) and NOLTA2014 (Luzern, Switzerland, September 2014).
- Gave **oral presentation** in national conferences NCNSD2011 (Tiruchirappalli, January 2011), NCNSD2012 (Pune, July 2012) and poster presentation in NCNSD2009 (Kolkata, March 2009) and CNSD (Kolkata, December, 2016).

## Selected Publications

[1] **K. Mandal** and S. Banerjee, "Synchronization Phenomena in Interconnected Power Electronic Systems," *IEEE Transactions on Circuits and Systems – II*, vol. 3, no. 2, pp. 221-225, February 2016.

[2] **K. Mandal** and S. Banerjee, "Synchronization Phenomena in Microgrids with Capacitive Coupling," *IEEE Journal on Emerging and Selected Topics in Circuits and Systems,* vol. 5, no. 3, pp. 364-371, September 2015.

[3] **K. Mandal**, S. Banerjee, and C. Chakraborty, "A New Algorithm for Small-Signal Analysis of DC-DC Converters," *IEEE Transactions on Industrial Informatics*, vol. 10, no.1, pp. 628-636, February 2014.

[4] **K. Mandal**, S. Banerjee, and C. Chakraborty, "Symmetry-Breaking Bifurcation in Series-Parallel Load Resonant DC-DC Converters," *IEEE Transactions on Circuits and Systems-I*, vol. 60, no. 3, pp. 778-787, March 2013.

[5] **K. Mandal**, C. Chakraborty, A. Abusorrah, M. M. Al-Hindawi, Y. Al-Turki, and S. Banerjee, "Automated Algorithm for Stability Analysis of Hybrid Dynamical Systems," *The European Physical Journal Special Topics*, vol. 222, pp. 757-768, July, 2013.

[6] **K. Mandal**, A. El Aroudi, A. Abusorrah, M. M. Al-Hindawi, Y. Al-Turki, D. Giaouris and S. Banerjee, "Nonlinear Modeling and Stability Analysis of Resonant DC-DC Converters," *IEE IET Power Electronics,* vol. 8, no. 12, pp. 2492-2503, December 2015.

[7] A. El Aroudi, **K. Mandal**, D. Giaouris, and S. Banerjee, "Self-compensation of DC-DC converters under peak current mode control," *IEE IET Electronics Letters*, vol. 53, no. 5, pp. 345-347, March 2017.

[8] A. El Aroudi, **K. Mandal** et. al., "Fast-Scale Stability Limits of a Two-Stage Boost Power Converter," *International Journal of Circuit Theory and Applications, vol. 44, no. 5, pp. 1127-1141*, May 2016.

[9] A. Abusorrah, **K. Mandal** et. al., "Avoiding Instabilities in Power Electronic Systems: Toward an On-Chip Implementation," *IEE IET Power Electronics*, July 2017.

[10] Y. Al-Turki, A. El Aroudi, **K. Mandal** et. al., "Non-averaged Control-Oriented Modeling and Relative Stability Analysis of DC-DC Switching Converters," *International Journal of Circuit Theory and Applications*, June 2017.

**Google-Scholar Page:**
https://scholar.google.co.in/citations?user=9hDcAxgAAAAJ&hl=en
**Researcher ID Page (Thomson Reuters):**
http://www.researcherid.com/rid/R-5273-2016
**Researchgate Profile:**
https://www.researchgate.net/profile/Kuntal_Mandal

I hereby declare that the information given herein is true to the best of my knowledge.

Kuntal Mandal
(KUNTAL MANDAL)

Place: NIT Sikkim, India
Date: 10/09/2017