

## AKSHAY KUMAR RATHORE

Assistant Professor

Electrical and Computer Engineering

National University of Singapore

Singapore

Webpage: [www.ece.nus.edu.sg/stfpage/akr](http://www.ece.nus.edu.sg/stfpage/akr)

**Senior Member IEEE (USA)**

**Office:** Block E5, Level 03, Room 06

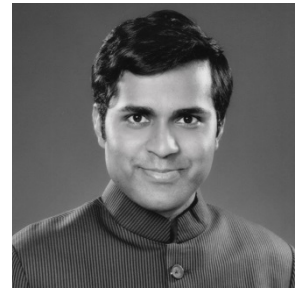
4 Engineering Drive 3

117576 Singapore.

PH: (+65) 65166471

Fax: (+65) 67791103

Email: [eleakr@nus.edu.sg](mailto:eleakr@nus.edu.sg)



## ACADEMIC QUALIFICATION

**Ph. D.:** University of Victoria, British Columbia, Canada; Power Electronics; 2008

**M. Tech.:** Indian Institute of Technology, (BHU), Varanasi, India; Electrical Machines and Drives; 2003

**B. E.:** Maharana Pratap University of Agriculture and Technology, India; Electrical Engineering; 2001

## POSTDOCTORAL RESEARCH EXPERIENCE

- **Postdoctoral Research Associate:** Electrical & Computer Engineering, University of Illinois at Chicago, USA; Sept. 2009 – Sept 2010.
- **Research Fellow:** Electrical Machines and Drives Research Lab, Wuppertal University, Germany. Sept. 2008 – Aug. 2009.

## CURRENT RESEARCH INTEREST

1. Soft-switching techniques for High-frequency Power Conversion
2. Current-fed dc/dc converters and dc/ac inverters
3. Automotive Power Electronics (Electric Vehicles and Fuel Cell Vehicles)
4. Innovative New Power Converters Topologies
5. Resonant and PWM converters; Bidirectional converters and converters
6. Multilevel inverters; Medium voltage drives
7. High performance optimal control of AC drives
8. Distributed Generation; Renewable Integration; Rural Electrification, Micro-grid Energy System

## SELECTED PUBLICATIONS

1. Prasanna UR and A. K. Rathore, "Small signal analysis of current-fed full-bridge isolated dc/dc onverter with active-clamp and control system implementation using PSoC," *in press, IEEE Transactions on Industrial Electronics* (DOI: [10.1109/TIE.2013.2259784](https://doi.org/10.1109/TIE.2013.2259784)), March 2014 (online)
2. P. Xuewei and A. K. Rathore, "Novel Bidirectional Snubberless Naturally Commutated Soft-switching Current-fed Full-bridge Isolated DC/DC Converter for Fuel Cell Vehicles," *in press, IEEE Transactions on Industrial Electronics*, (DOI: [10.1109/TIE.2013.2271599](https://doi.org/10.1109/TIE.2013.2271599)).
3. A. K. Rathore, and U. R. Prasanna, "Analysis, design, and experimental results of novel snubberless bi-directional naturally clamped ZCS/ZVS current-fed half-bridge dc/dc converter for fuel cell vehicles" *IEEE Transactions on Industrial Electronics*, vol. 60, no. 10, pp. 4482-4491.
4. U. R. Prasanna and A. K. Rathore, "Novel Single Reference Six-Pulse-Modulation (SRSPM) Technique Based Interleaved High-Frequency Three-phase inverter for Fuel Cell Vehicles," *IEEE Transactions on Power Electronics*, vol. 28, no. 12, 2013, pp. 5547-5556.
5. P. Xuewei and A. K. Rathore, "Novel Interleaved Bidirectional Snubberless Soft-switching Current-fed Full-bridge Voltage Doubler for Fuel Cell Vehicles," *IEEE Transactions on Power Electronics*, vol. 28, no. 12, 2013, pp. 5535-5546.
6. A. K. Rathore, A. K. S. Bhat and R. Oruganti "Analysis, design and experimental results of wide range ZVS active-clamped L-L type current-fed dc-dc converter for fuel cell to utility interface application," *IEEE Transactions on Industrial Electronics*, vol 59, issue 1, Jan 2012, pp 473-485.

# Curriculum Vitae

**Name:** TONG Yen Wah

**Present Appointment:** Associate Professor

**Contact Information:**

E5-03-15, 4 Engineering Drive 4

Department of Chemical and Biomolecular Engineering

Faculty of Engineering

National University of Singapore

Singapore 117576

Tel: (65) 65168467, Fax: (65) 67791936, Email: chetyw@nus.edu.sg

**Research areas:**

- Polymer synthesis and modification, Biomedical materials, Tissue Engineering, Biomedical engineering, Bioseparations, Molecular Imprinting
- Surface science, Materials characterization, Analytical chemistry, Environment and Energy, Membranes, Water purification

**Teaching areas:**

- Polymer chemistry and engineering, analytical chemistry, surface science and colloids
- Transport phenomena, Tissue engineering, Drug delivery

**Academic/Professional Qualifications:**

- Ph.D., University of Toronto, 2000
- B.Sc. (Engineering Chemistry), Queen's University, Canada, 1995

**Awards/Honours (Post-PhD):**

- Annual Teaching Excellence Award, 2005/06, 2006/07, 2007/08
- Engineering Educator Award, 2005/06

**Career History:**

- Associate Professor, July 2009 – present: National University of Singapore
- Assistant Professor, June 2001 – June 2009: National University of Singapore
- Environmental Consultant, May 2000 – May 2001: EnviroLIFT (M) Sdn Bhd, Malaysia

**Administrative Leadership:**

- Assistant Dean (Research Office), Faculty of Engineering
- Executive Committee, NUS Environment Research Institute

**Major Publications:**

1. Z. Guo and Y.W. Tong, *J. Appl. Phycol.*, 2013 (accepted).
2. W. Xie, F. He, B. Wang, T.-S. Chung, K. Jeyaseelan, A. Armugam, and Y.W. Tong, *J. Mater. Chem. A*, **1** (26), 7592-7600 (2013).
3. W.F. Yong, F.Y. Li, Y.C. Xiao, P. Li, K.P. Pramoda, Y.W. Tong, and T.S. Chung, *J. Membr. Sci.*, **407-408**, 47-57 (2012).
4. J. Luo and Y.W. Tong, *ACS Nano*, **5** (10), 7739-7747 (2011).
5. W. Chen, Y. Tabata, and Y.W. Tong, *Curr. Pharm. Des.*, **16** (21), 2388-2394 (2010).
6. N. Wiradhama, Y.W. Tong, and Y.Y. Yang, *Biomaterials*, **30** (17), 3100-3109 (2009).
7. X.H. Zhu, Y. Tabata, C.H. Wang, Y.W. Tong, *Tissue Eng. A*, **14** (12), 1939-1947, (2008).
8. S.T. Khew, Q.J. Yang, Y.W. Tong, *Biomaterials*, **29** (20), 3034-3045 (2008).
9. C.J. Tan, H.G. Chua, K.H. Ker, Y.W. Tong, *Anal. Chem.*, **80** (3), 683-692 (2008).
10. S.Q. Liu, Y.W. Tong, Y.Y. Yang, *Biomaterials*, **26** (24), 5064-5074 (2005).

## BLACKWOOD, Daniel John

Associate Professor

Room: E2-03-23

Tel: ++(65) 6516-6289

Fax: ++(65) 6776-3604

E-mail: msedjb@nus.edu.sg



### RESEARCH AREAS

- Semiconductor Electrochemistry
- Corrosion
- Environmental Electrochemistry / Sustainable Energy

### EDUCATION AND WORK EXPERIENCE

1996–Present: Senior Lecturer / Associate Professor, National University of Singapore

1990–1996: Project Manager, AEA Technology, Harwell Laboratories, England

1989–1990: Alexander von Humboldt Fellow, Bundeswehr University, Munich

1986–1988: Postdoctoral Fellow, University of Utah.

1983–1986: PhD (Electrochemistry), Southampton.

1980–1983: BSC. (Chemistry) Southampton.

### PROFESSIONAL

Chartered Scientist (2004); Chartered Chemist (1995)

Fellow of Royal Society of Chemistry (UK) (1995–Present)

Member of National Association of Corrosion Engineers (USA) (1994–Present)

Member of International Society of Electrochemist (2006–Present)

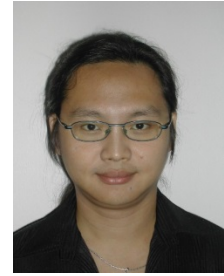
### SELECTED RELEVANT PUBLICATIONS

1. D.Q. Liu, D.J. Blackwood, "Mechanism and Dissolution Rates of Anodic Oxide Films on Silicon", *Electrochimica Acta* **105** (2013) 209-17.
2. D.Q. Liu, D.J. Blackwood, "The Role of the Flat-band potential in Porous Silicon Formation", *Journal of the Electrochemical Society* **159** (2012) H909-12.
3. M.R. Khajavi, D.J. Blackwood, G. Cabanero, R. Tena-Zaera, "New insight into growth mechanism of ZnO nanowires electrodeposited from nitrate-based solutions", *Electrochimica Acta* **69** (2012) 181-9.
4. Y.T Tan, T L S.L. Wijesinghe, G.K.L. Ng, DJ Blackwood, "Investigation into the Influence of Laser Melting on the Sulphide Inclusions in AISI 416 Stainless Steel", *Corrosion Science* **53** (2011) 3950-3955.
5. Z.B. Xie, D.J. Blackwood "Effects of anodization parameters on the formation of titania nanotubes in ethylene glycol", *Electrochimica Acta* **56** (2010): 905-12.
6. D.J. Blackwood, S.M. Khoo, "Electroless Plating of Noble Metal Nanoparticles for Improved Performance of Si Photodiodes via Surface Plasmon Resonance" *Solar Energy Materials & Solar Cells*, **94** (2010) 1201-6.
7. D.J. Blackwood, C.S. Lim S.L.M. Teo, "Influence of fouling on the efficiency of sacrificial anodes to provide cathodic protection in Southeast Asian tropical seawater", *Biofouling* **26** (2010): 779-85.
8. D.J Blackwood and K.H. Seah, "Influence of Anodization on the Adhesion of Calcium Phosphate Coatings on Titanium Substrates", *Journal of Biomedical Materials Research Part A*, **93A** (2009) 1551-6.
9. G.X. Hu, S. Q. Li, H. Gong, Y.L. Zhao, J.X. Zhang, T.L.S.L. Wijesinghe & D.J. Blackwood, "White light from an Indium Tin Oxide/Porous Silicon LED", *Journal of Physical Chemistry C* **113** (2009) 751-754.
10. S. Q. Li, T. L. S. L. Wijesinghe and D. J. Blackwood, "Photoluminescent n-type porous silicon fabricated in the dark", *Advanced Materials*, **20** (2008) 3165-3168.

**KOH SOO JIN ADRIAN**

Assistant Professor  
Civil and Environmental Engineering  
National University of Singapore  
Singapore  
Webpage: [www.eng.nus.edu.sg/cee/people/ceeksja/](http://www.eng.nus.edu.sg/cee/people/ceeksja/)

**Office:** Block EA, Level 07, Room 39  
9 Engineering Drive 1  
Singapore 117576.  
PH: (+65) 65168023  
Fax: (+65) 67754710  
Email: [ceeksja@nus.edu.sg](mailto:ceeksja@nus.edu.sg)



**Member ASME/IEEE (USA), Member SPIE (USA), Member SACM (Singapore)**

## ACADEMIC QUALIFICATIONS

**PhD.:** National University of Singapore, Singapore; Integrative Sciences; 2008

**M.Eng.:** National University of Singapore, Singapore; Structural Engineering; 2003

**B.Eng. (Hons):** National University of Singapore, Singapore; Civil Engineering, *graduated with 1<sup>st</sup> Class Honours*; 2000

## POSTDOCTORAL RESEARCH EXPERIENCE

- **Postdoctoral Research Fellow:** Harvard School of Engineering and Applied Science, Harvard University, USA; May 2008 – May 2010.

## CURRENT RESEARCH INTEREST

1. Motion-based energy harvesting
2. Soft robotics
3. Applied solid mechanics
4. Soft active materials
5. Smart sensors and dampers

## SELECTED PUBLICATIONS

1. C. Foo, S. J. A. Koh, C. Keplinger, R. Kaltseis, S. Bauer and Z. Suo, Performance of Dissipative Dielectric Elastomers. *J. Appl. Phys.* **111**, 094107, 2012.
2. X. Zhao, S. J. A. Koh and Z. Suo, Nonequilibrium Thermodynamics of Dielectric Elastomers. *Int. J. Appl. Mech.* **3**, 203–217, 2011.
3. S. J. A. Koh, C. Keplinger, T. Li, S. Bauer and Z. Suo, Dielectric Elastomer Generators: How much energy can be converted? *IEEE/ASME Trans. Mech.* **16**, 33–41, 2010.
4. S. J. A. Koh, X. Zhao and Z. Suo, Maximal energy that can be converted by a dielectric elastomer generator, *Appl. Phys. Lett.* **94**, art. No. 262902, 2009.
5. S. J. A. Koh, Maximum Energy that can be Harvested from a Dielectric Elastomer Generator, in *2009 MRS Fall Proceedings*, edited by Materials Research Society, vol. 1218E, 2009 MRS Fall Meeting (30 Nov – 4 Dec 2009, Boston, MA, USA).
6. S. J. A. Koh, X. Zhao and Z. Suo, Maximal energy that can be converted by a dielectric elastomer generator in [\*WorldWide Electroactive Polymers Newsletter\*, vol. 11, no. 1, pp. 15, June 2009.](#)

## AWARDS & INVITED TALKS

1. **Promising International Researcher Award** by the European Scientific Network for Artificial Muscles, 2013.
2. **Invited Talk: Energy Harvesting** at the International Conference for Electroactive Polymers, Dubendorf, Switzerland, 2013.

**LEE POH SENG**  
Assistant Professor  
Department of Mechanical Engineering  
National University of Singapore  
Singapore  
Webpage: <http://serve.me.nus.edu.sg/MTS>  
*Member ASME (USA)*

**Office:** Block E2, #02-07  
5 Engineering Drive 2  
Singapore 117576.  
PH: (+65) 65164187  
Fax: (+65) 67791459  
Email: [mpelps@nus.edu.sg](mailto:mpelps@nus.edu.sg)



#### **A. EDUCATIONAL QUALIFICATIONS:**

- Ph.D. in Mechanical Engineering, Purdue University, USA, May 2007
- Master of Engineering (Mechanical), NUS, August 2001
- Bachelor of Engineering (Mechanical), NUS, August 1999

#### **B. PROFESSIONAL EXPERIENCE:**

- Adjunct Professor, September 2012 – Present, School of Human Settlements and Civil Engineering, Xi'an Jiaotong University, China.
- Deputy Laboratory Supervisor, November 2011 – Present, Energy and Bio-Thermal Systems Group, Department of Mechanical Engineering, National University of Singapore, Singapore
- Assistant Professor, May 2007 – Present, Department of Mechanical Engineering, National University of Singapore, Singapore
- Graduate Research Assistant, June 2002 – May 2007, School of Mechanical Engineering, Purdue University, West Lafayette, Indiana, USA

#### **C. CURRENT RESEARCH INTERESTS:**

- Microfluidics & Microscale Heat Transfer
- Heat Transfer Enhancement Techniques
- Thermal Management Techniques
- High Heat Flux Dissipation
- Thermal Energy Harvesting

#### **D. SELECTED PUBLICATIONS:**

1. Lee, Y.J., Lee, P.S., Chou, S.K., Enhanced thermal transport in microchannel using oblique fins, 2012, *Journal of Heat Transfer*, 134 (10), art. no. 101901.
2. Sui, Y., Teo, C.J., Lee, P.S., Direct numerical simulation of fluid flow and heat transfer in periodic wavy channels with rectangular cross-sections, 2012, *International Journal of Heat and Mass Transfer*, 55 (1-3), pp. 73-88.
3. Sui, Y., Lee, P.S., Teo, C.J., An experimental study of flow friction and heat transfer in wavy microchannels with rectangular cross section, 2011, *International Journal of Thermal Sciences*, 50 (12), pp. 2473-2482.
4. Sui, Y., Teo, C.J., Lee, P.S., Chew, Y.T., Shu, C., Fluid flow and heat transfer in wavy microchannels, 2010, *International Journal of Heat and Mass Transfer*, 53 (13-14), pp. 2760-2772.
5. Lee, P. -S. and Garimella, S. V., 2006, "Thermally developing flow and heat transfer in rectangular microchannels of different aspect ratios," *International Journal of Heat and Mass Transfer*, Vol. 49 (17):3060-3067.
6. Lee, P. -S., Garimella, S. V., and Liu, D., 2005, "Experimental investigation of heat transfer in microchannels," *International Journal of Heat and Mass Transfer*, Vol. 48 (9):1688-1704.

#### **E. PATENTS:**

1. Lee, P. -S. and Chang, S. C., 2008, "Integrated circuit chip and method for cooling an integrated circuit chip," United States Patent 7411290.
2. Lee, P. -S. and Garimella, S. V., 2007, "Microchannel heat sink," United States Patent 7277284.
3. Lee, P. -S. and Lee, Y. -J., 2010, "An Enhanced Heat Sink", PCT Patent Application No.: PCT/SG2010/000169. Country filings in US, Germany and China.
4. Balasubramanian, K. and Lee, P. -S., 2012, "Two-Phase Stepped Fin Microchannel Heat Sink for Enhanced Heat Transfer and Reduced Pressure Drop", PCT Patent Application No.: PCT/SG2012/000416