

# MEHDI BAGHDADI

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## EDUCATION

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| 2012 – 2015 | PhD in Electrical Engineering  | University of Cambridge (UK) |
|             | Design and fabrication of the HTS synchronous motor (Industrial project funded by Rolls-Royce) |                              |
| 2007 – 2010 | M.Sc. (Hon.) in Electrical Engineering   | Chamran University (Iran)    |
|             | Reliability unit commitment of DISCOs integrated with wind farms and spinning reserve.         |                              |
| 2002 – 2006 | B.Sc. (Hon.) in Electrical Engineering   | Chamran University (Iran)    |
|             | Load frequency control of steam power plants using fuzzy logic-PID controller.                 |                              |
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## SCHOLARSHIPS AND AWARDS

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| • Islamic Development Bank                       | PhD Scholarship                        |
| • Elite Student Award                            | Iran Elites National Foundation (Iran) |
| • Honour Student, M.Sc. Degree (Grade: 18.25/20) | Chamran University (Iran)              |
| • Distinguished M.Sc. Dissertation Award         | Chamran University (Iran)              |
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## ACADEMICS ACTIVITIES (Selected)

### TECHNICAL REVIEWERS

- IEEE Trans. on Applied Superconductivity, ASC 2014, MT 2013, Mathematical Problems in Engineering

### ORAL PRESENTATION

- Theoretical and experimental reports on the design and fabrication of 4KW HTS motor (JWPAS 2015)
- Design report for superconducting synchronous motor using superconducting stacked tapes ASC 2014
- Demagnetization effect in HTS stacked tapes subjected to transverse magnetic field ASC 2014

### CONFERENCE PRESENTATION

- Nine conference papers and poster presentations 2010-2015

### TEACHING EXPERIENCE (Selected)

- Supervisions: 3B4: Electric drive system, 3B3: Power electronics, IB: Electrical Power, IB: Electromagnetics and waves, IA: AC Power University of Cambridge (2013 – 2015)
  - Demonstrations: 3B2-Digital Circuits, IA- Transformers University of Cambridge (2013 – 2015)
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## PUBLICATIONS

### BOOK CHAPTERS

1. **M. Baghdadi**, F. Aminifar, M. Fotuhi-Firuzabad, S.S. Mortazavi, Power generation scheduling based on stochastic programming, *Scheduling Problems and Solutions*, Nova Publisher, 2011
2. M. Joorabian, I. Sadinezhad, **M. Baghdadi**, A novel frequency tracking method based on complex adaptive linear neural network state vector in power systems, *Artificial neural networks*, InTech open access publisher, 2010

### JOURNAL PAPERS (Full list at: [www.researchgate.net/profile/Mehdi\\_Baghdadi](http://www.researchgate.net/profile/Mehdi_Baghdadi))

1. **M. Baghdadi**, H. S. Ruiz, T. A. Coombs, Low demagnetization factor in stacks of second-generation superconducting tapes under crossed and rotating magnetic fields, *Submitted to Phys. Rev. Applied*, 2015
2. **M. Baghdadi**, K. Matsuda, T. A. Coombs, Generation and confinement of uniform magnetic field using second generation superconducting racetrack coils, *Submitted to IEEE Transactions on Applied Superconductivity*, 2015
3. **M. Baghdadi**, H. S. Ruiz, T. A. Coombs, Crossed-magnetic-field experiments on stacked second generation superconducting tapes: Reduction of the demagnetization effects, *Appl. Phys. Lett.* 104, 232602 (2014). 10 citations since July 2014
4. **M. Baghdadi**, H. S. Ruiz, T. A. Coombs, Investigation of demagnetization in HTS stacked tapes implemented in electric machines as a result of crossed magnetic field, *IEEE Trans. on Applied Superconductivity*, 2014

5. L. Fu, K. Matsuda, **M. Baghdadi**, T. A. Coombs, Linear Flux Pump Device Applied to High Temperature Superconducting HTS Magnets, *EEE Trans. on Applied Superconductivity*, 25(3), 2015
6. M. Chudy, Y. Chen, M. Zhang, **M. Baghdadi**, J. Lalk, T. Pretorius, T. Coombs, Power losses of 2G HTS coils measured in external magnetic DC and ripple fields, *IEEE Trans. on Applied Superconductivity*, 24 (1), 8200606 (2014)
7. M. Zhang, W. Wang, Z. Huang, **M. Baghdadi**, W. Yuan, J. Kvitkovic, S. Pamidi, T.A. Coombs, AC Loss measurements for 2G HTS racetrack coils with heat-shrink tube insulation, *IEEE Trans. on Applied Superconductivity*, 24 (3), 4700704 (2014)
8. W. Wang, M. Zhang, Z. Huang, Y. Zhai, Z. Zhong, F. Spaven, **M. Baghdadi**, T. Coombs, Study of the penetration of a 2 inches diameter YBCO thin film with the travelling magnetic wave, *IEEE Trans. on Applied Superconductivity*, 24 (3), 4600304, (2014)
9. W. Wang, F. Spaven, M. Zhang, **M. Baghdadi**, T. A. Coombs, Direct measurement of the vortex migration caused by traveling magnetic wave, *Applied Physics Letter*, 104, 032602 (2014)
10. Z. Huang, W. Xian, M. Zhang, M. Chudy, Y. Chen, Z. Zhong, **M. Baghdadi**, W. Wang, F. Spaven, K. Matsuda, T.A. Coombs, Control and operation of a high temperature superconducting synchronous motor, *IEEE Trans. on Applied Superconductivity*, 23 (3) 5200204 (2013)
11. **M. Baghdadi**, S. S. Mortazavi, A. Saidian, Optimal power management of a DISCO with integrations of reliability considerations and wind farm based on benders decomposition, *Mathematical Problems in Engineering*, 2011, 812364 (2011)
12. **M. Baghdadi**, S.S. Mortazavi, A. Saidian, S.M.M. Tafreshi, Optimal operation of a distribution company with integration of reliability considerations based on Generalized Benders Decomposition method, *Modern Electric Power Systems*, (2010)
13. **M. Baghdadi**, S.S. Mortazavi, A. Saidian, Reliability based unit commitment of a Distribution Company with Integrations of Probabilistic Wind Farm and Spinning reserve Based on Benders Decomposition Method, *International Review of Electrical Engineering*, (2010)

## TECHNICAL SKILLS (Selected)

### TECHNICAL SPECIALITIES

HTS Motor Design: Design and build (Electromagnetic, Mechanical, and Thermal design), Applied Superconductivity and cryogenics, Control motor drives, Power electronics, Smart grids, High precision measurement, Micro-controller programming, PCB design.

### COMPUTER SPECIALITIES

COMSOL Multiphysics (AC/DC, Fluid flow, Heat transfer, Structural mechanics, and PDE), LabVIEW programming, SolidWorks, Eagle PCB, PSPICE, MATLAB and Simulink, High Performance Computing, Optimisation (Machine learning, Neural network, GAMS). Programming languages: C++, JAVA, Python.

## WORK EXPERIENCE

2010 – 2012	Research Associate	AmirKabir University of Technology
	TA for undergraduate students.	
2010 – 2011	Engineer	Centre Point (UAE)
	Industrial projects: e.g., Citing and sizing of capacitor banks.	
2006 – 2007	Engineer	MATN International (Iran)
	Consultancy on Power systems: e.g., Power loss management using DigSILENT.	

## REFEREES

- Dr. Timothy A. Coombs      PhD Supervisor  
Department of Engineering, University of Cambridge, 01223 748315, tac1000@cam.ac.uk.
- Prof. Archie M. Campbell      PhD Examiner  
Emeritus Professor of Electromagnetism, Christ College, Cambridge, 01223 332831, amc1@cam.ac.uk.
- Prof. Phillip Vanderbemden      PhD Examiner  
Department of Engineering, University of Liège, Belgium, +32 4 3662670, Philippe.Vanderbemden@ulg.ac.be.