

Name: Peng Zhang **E-mail:** peng.zhang@gm.com, ms.peng.zhang@gmail.com
Employer: General Motors **Address:** 777 Joslyn Ave, Pontiac, MI, 48340-2925
Job Title: Hybrid & Electric Vehicle Motor Design Engineer, 01/02/2014~present

- AREAS OF SPECIAL INTEREST**
- Design optimization and modeling of electric machines
 - Adjustable speed drives for electric machines
 - Electromagnetic field analysis.

EDUCATION **Marquette University, Milwaukee WI, USA, Ph.D. Candidate**
01/2008~12/2013

Electrical Machines and Drives Laboratory in Department of EECE

Changwon National University, South Korea, M.S. 03/2005~02/2007

ECAD Lab in Department of Electrical Engineering

Northeastern University, Shenyang, Liaoning, China, B.Eng. 08/2000~07/2004

Major: Automation Control

ACADEMIC EXPERIENCES **Research Assistant for Ph.D. Degree 01/2010~12/2013**

- Advanced Design Optimization and Simulation of Modular Brushless PM Electric Machines and Drives.

Presenter in Training Courses of ANSYS Corporation

- **ANSYS Training course in June 2011** at Milwaukee, WI: Optimal Design and Simulation of Brushless PM Machines and Drives
- **ANSYS Training course in June 2012** at Milwaukee, WI: Optimal Design, Condition Monitoring and Fault Tolerance of Electric Machines and Drives.

Teaching Assistant at EECE Department of Marquette University 01/2008~12/2009

- Digital Electronics Laboratory and Circuit Laboratory.

Research Assistant for Master degree
03/2005~02/2007

- Development of motor/generator for hard type Hybrid Electric Vehicles.

PUBLICATIONS **IEEE Transaction Papers (2):**

1. Peng Zhang, Gennadi Y. Sizov, Jiangbiao He, Dan M. Ionel, and Nabeel A.O. Demerdash, "Calculation of Magnet Losses in Concentrated-Winding Permanent Magnet Synchronous Machines Using a Computationally Efficient - Finite Element Method," IEEE Transaction on Industry Applications, vol.49, no.6, pp.2524-2532, Nov.-Dec. 2013. **Prize paper award from IEEE Industry Application Society (IAS) Electric Machines Committee for 2012.**
2. Gennadi Y. Sizov, Peng Zhang, Dan M. Ionel, Nabeel A.O. Demerdash, and Marius Rosu, "Automated Multi-Objective Design Optimization of PM AC Machines Using Computationally Efficient- FEA and Differential Evolution," IEEE Transaction on Industry Applications, vol.49, no.5, pp.2086,2096, Sept.-Oct. 2013.

Refereed International Conference Papers (7)

3. Peng Zhang, Gennadi Y. Sizov, Muyang Li, Dan M. Ionel, Nabeel A.O. Demerdash, Steven Stretz, and Alan W. Yeadon, "Multi-objective Tradeoffs in the Design Optimization of a Brushless Permanent Magnet Machine with Fractional-Slot Concentrated Windings," *IEEE Energy Conversion Congress and Exposition (ECCE)*, pp.2842-2849, Denver, Sep. 2013.
4. Peng Zhang, Dan M. Ionel, and Nabeel A.O. Demerdash, "Morphing Parametric Modeling and Design Optimization of Spoke and V-Type Permanent Magnet Machines by

- Combined Design of Experiments and Differential Evolution Algorithms," *IEEE ECCE*, pp. 5056-5063, Denver, CO, Sep. 2013.
5. Peng Zhang, Gennadi Y. Sizov, Dan M. Ionel, and Nabeel A.O. Demerdash, "Design Optimization of Spoke-Type Ferrite Magnet Machines by Combined Design of Experiments and Differential Evolution Algorithms," *IEEE International Electric Machines & Drives Conference (IEMDC)*, pp. 958-964, Chicago, IL, May 2013.
 6. Jiangbiao He, Andrew Strandt, Alia Manarik, Peng Zhang, and Nabeel A.O. Demerdash, "Diagnosis of Stator Short-Circuit Faults in an IPM Synchronous Machine Using Space-Vector Pendulous Oscillation Method," *IEEE IEMDC*, pp. 793-799, May 2013.
 7. Peng Zhang, Gennadi Y. Sizov, Jiangbiao He, Dan M. Ionel, and Nabeel A.O. Demerdash, "Calculation of magnet losses in concentrated-winding permanent magnet synchronous machines using a Computationally Efficient - Finite Element method," *IEEE ECCE*, pp.3363-3370, Sept. 2012.
 8. Gennadi Y. Sizov, Peng Zhang, Dan M. Ionel, Nabeel A.O. Demerdash, Ian P. Brown, and Mark G. Solveson, "Modeling and analysis of effects of skew on torque ripple and stator tooth forces in permanent magnet AC machines," *IEEE ECCE*, pp.3055-3061, Sept. 2012.
 9. Gennadi Y. Sizov, Peng Zhang, Dan M. Ionel, Nabeel A.O. Demerdash, and Marius Rosu, "Automated bi-objective design optimization of multi-MW direct-drive PM machines using CE-FEA and differential evolution," *IEEE ECCE*, pp.3672-3678, Sept. 2011.
 10. Jiangbiao He, Gennadi Y. Sizov, Peng Zhang, and Nabeel A.O. Demerdash, "A review of mitigation methods for overvoltage in long-cable-fed PWM AC drives," *IEEE ECCE*, pp.2160-2166, Sept. 2011.
 11. Peng Zhang, Gennadi Y. Sizov, and Nabeel A.O. Demerdash, "Comparison of torque ripple minimization control techniques in Surface-Mounted Permanent Magnet Synchronous Machines," *IEEE IEMDC*, pp.188-193, May 2011.
 12. P. Zhang, S. Kwon, L. Fang, and J. Hong, "Design and Analysis of a High Efficiency Permanent Magnet Reluctance Motor," 2006 International Conference on Electrical Machines and Systems (ICEMS), Japan.
 13. J. Jung, P. Zhang, J. Hong, and J. Lee, "Design for Total Harmonic Distortion Reduction of Concentric Winding Type IPMSM for Integrated Starter and Generator", ICEMS 2006, Japan.
 14. Soon-O Kwon, Sung-II Kim, Peng Zhang, and Jung-pyo Hong, "Performance Comparison of IPMSM with Distributed and Concentrated Windings", *IEEE IAS Annual Meeting*, vol.4, no., pp.1984-1988, 8-12 Oct. 2006.
 15. Liang Fang, Soon-O Kwon, Peng Zhang, and Jung-pyo Hong, "Torque Ripple Reduction Design of Multi-layer Interior Permanent Magnet Synchronous Motor by Using Response Surface Methodology", ICEM 2006, No. 276, Greece.
 16. Liang Fang, Soon-O Kwon, Peng Zhang, and Jung-pyo Hong, "Conformal Mapping Technique for Magnetic Saliency Analysis of Double-layer Interior Permanent Magnet Motor," *2006 12th Biennial IEEE Conference on Electromagnetic Field Computation*, vol., no., pp.231, USA.

Conference Papers in South Korea (4)

17. Peng Zhang, Soon-O Kwon, and Jung-pyo Hong, "Design and Analysis of a Permanent Magnet Reluctance Motor with High Efficiency", the 37th the Korean Institute of Electrical Engineers (KIEE) Summer Annual Conference, July 2006, South Korea.
18. Liang Fang, Soon-O Kwon, Sang-ho Lee, Peng Zhang, and Jung-pyo Hong, "Improvement of Efficiency in Multi-layer IPMSM Using Response Surface Methodology", the 37th KIEE Summer Annual Conference, July 2006, South Korea.
19. Soon-O Kwon, Ji-young Lee, Liang Fang, Peng Zhang, and Jung-pyo Hong, "Study on the Characteristics of IPMSM According to the Ratio of Magnetic and Reluctance Torque", the 37th KIEE Summer Annual Conference, July 2006, South Korea.
20. Peng Zhang, Ji-young Lee, and Jung-pyo Hong, "Short Circuit Fault Analysis and Dynamic Simulation of Superconducting Synchronous Machine", the 2005 Korea Institute of Applied Superconductivity and Cryogenics, Oct. 2005, South Korea.

RECENT AWARDS **Prize Paper Award from IEEE Industry Application Society (IAS) Electric Machines Committee for 2012.**

LANGUAGES **English (proficient), Chinese (mother tongue), Korean (primary level).**