DENIZ YILDIRIM

Address: Istanbul Technical University, Ayazaga Campus
Dept. of Electrical Engineering, Maslak Istanbul 34469 Turkey
Tel: +90-212 285 6744
Fax: +90-212 285 6700
E-mail: deniz@ieee.org
Home page: http://www.denizyildirim.org

Areas of interest

- Power electronic circuits for utility interactions of renewable energy (solar and wind power) sources,
- Permanent magnet electrical machines,
- High efficiency power converters,
- Operation of power transformers with power electronic based (nonlinear) loads,
- Harmonics and power quality in power systems.

Education

Sep 93 - May 99 **Ph.D., Electrical Engineering,**
University of Colorado at Boulder, Boulder, Colorado, USA, GPA: 3.98/4.00.
Ph.D. thesis: "*Commissioning of 30kVA Variable-Speed, Direct-Drive Wind Power Plant*"

Jan 92 – Aug 93 **M.S., Electrical Engineering**,
University of Colorado at Boulder, Boulder, Colorado, USA, GPA: 3.94/4.00.

Sep 85 – Oct 89 **B.S., Electrical Engineering,**
Istanbul Technical University, Istanbul, Turkey, GPA: 74/100.

Related Experience

- Analyzed, constructed, and tested a 30 kVA AC-DC-AC system (variable amplitude and frequency AC input, constant 60 Hz AC output) for variable speed wind power generation applications,
- Experienced in all phases of design, construction, and testing of a 20 kW high power factor zero-current-switch resonant rectifier and a 30 kVA current-controlled utility interconnected PWM inverter,
- Design of a permanent-magnet reluctance machine for high torques at low speeds,
- Derating of distribution transformers operating at any (non)linear load,
- Investigating the losses of inductors operating at high frequencies.

Academic Experience

Nov 99 - Present Assistant Professor, Istanbul Technical University,
Department of Electrical Engineering

Jan 98 – Dec 98 Teaching Assistant, ECEN 4517/5017 Power/Power Electronics Laboratory,
University of Colorado at Boulder, Boulder, Colorado

Jun 97 – Jun 98 Research Assistant,
University of Colorado at Boulder, Boulder, Colorado

Courses Taught

Undergraduate *(Istanbul Technical University)*

Electrical Machines I (ELK341E)
Electrical Machines II (ELK332E)
Electrical Machines Laboratory (ELK421)
Power Electronic Circuits (ELK331E)
Power Electronics Laboratory (ELK342)
Design of Power Electronic Circuits (ELK334E)
Industrial Applications of Power Electronic Circuits I (ELK453E)
Design of Power Transformers (ELK314)
Introduction to Computers and Information Systems (BIL101E)

Graduate *(Istanbul Technical University)*

Analysis and Design of Switched Mode Power Supplies (ELK506E)
Design and Applications of Industrial Electronic Systems (MKM510E, *Mechatronic program*)

Teaching Accomplishments

- Introduced a term project for the "Design of Power Electronic Circuits" and "Industrial Applications of Power Electronics" courses so that students, working as a member of a team, will design a complete power electronic circuit, assemble a functional (working) product, test, and prepare a technical report.

Department Internal Experience

March 2001 – Present	Member of the Department of Electrical Engineering ABET (Accreditation Board for Engineering and Technology) Team, Head of Course Level Assessment Committee
July 2002 – Present	Member of the Electrical Engineering Graduate Program Committee
Mar 2000 – Nov 2002	Vice Chair, Department of Electrical Engineering, Istanbul Technical University.
January 2000 – Present	Manager of Department of Electrical Engineering Computer Room.

Industrial Experience

June 03 - Present Consultant to ANKA Information Systems R&D (www.ankabt.com)
Electronics Research and Development Section

Projects:

1. **Bone Surgery Systems**: Development of a handheld battery operated bone cutting and drilling system for surgical applications, Project manager.
2. **Brushless DC Motor**: Design of a high performance brushless DC motor to be used in medical devices.
3. **Positive Airway Pressure (PAP) Device**: Continuous positive airway pressure is a medical device which is used to treat sleep apnea.
4. **Adjustable Speed DC Drive**: Single quadrant adjustable speed drive for 24V, 35A permanent Magnet DC motor, Project manager *(completed)*.

Computer Skills

UNIX, Linux, Sun/Sparc, XWindows, PC/DOS, Macintosh, Windows 98/2000/XP;
Matlab, Mathematica, Mapple, IDL, PSPICE, Orcad, MS Word/Excel/PowerPoint, LaTeX, Autocad;
Fortran, Basic, HTML, Perl, CGI.

Publications

Journal Papers

1. D. Yildirim and E. F. Fuchs, "Measured Transformer Derating and Comparison with Harmonic Loss Factor (F_{HL}) Approach," *IEEE Transactions on Power Delivery*, Volume 15, Issue 1, January 2000, pp. 186-191.
2. E. F. Fuchs, D. Yildirim, and W. M. Grady, "Measurement of Eddy-Current Loss Coefficient P_{EC-R}, Derating of Single-Phase Transformers and Comparison with K-factor Approach," *IEEE Transactions on Power Delivery*, Volume 15, Issue 1, January 2000, pp. 148-154.
3. E. F. Fuchs, D. Yildirim and T. Batan, "Innovative Procedure for Measurement of Losses of Transformers Supplying Nonsinusoidal Loads," *IEE Proceedings - Generation, Transmission and Distribution*, Volume 146, Issue 6, November 1999, pp. 617-625.
4. D. Yildirim and E. F. Fuchs "Commentary on Various Formulations of Distortion Power D" *IEEE Power Engineering Review*, Volume 19, Issue 5, May 1999, pp. 50-52 .
5. D. Yildirim, "A New Computer Aided Method for the Efficiency Measurement of Low-Loss Transformers and Inductors under Nonsinusoidal Operation," by E. F. Fuchs and R. Fei, *IEEE Transactions on Power Delivery*, January 1996, Vol. PWRD-11, No. 1, p. 301.

Conference Papers

1. E. Muljadi, D. Yildirim, T. Batan, and C. P. Butterfield, "Understanding the Unbalanced-Voltage Problem in Wind Turbine Generation," *IEEE Industry Applications Society Thirty-Fourth Annual Meeting*, Volume 2, October 3-7, 1999, Phoenix, AZ, pp. 1359-1365.
2. D. Yildirim and E. F. Fuchs, "Computer Aided Measurement of Inductor Losses at High Frequencies (0 to 6kHz)," *IEEE Applied Power Electronics Conference and Exhibition APEC 99*, March 14-18 1999, Dallas, Texas, pp. 1203-1209.

3. D. Yildirim, E. F. Fuchs and T. Batan, "Test Results of a 20 kW Variable-Speed Direct-Drive Wind Power Plant," *International Conference on Electrical Machines ICEM 98*, September 2-4, 1998, Istanbul, Turkey, pp. 2039-2044.
4. D. Yildirim, E. F. Fuchs and T. Batan, "Measurement of Derating of Distribution Transformers at any (Non)Linear Load," *International Conference on Electrical Machines ICEM 98*, September 2-4, 1998, Istanbul, Turkey, pp. 976-981.
5. E. F. Fuchs, D. Lin and D. Yildirim, "Measured Efficiency and Power-Factor Improvements of Single- and Three -Phase Induction Motors with Thyristor Controllers," *International Conference on Electrical Machines ICEM 98*, September 2-4, 1998, Istanbul, Turkey, pp.1877-1882.

Report

1. W. M. Grady, T. Batan, D. Yildirim, and E. F. Fuchs, "The Potential Effects of Single-Phase Power Electronic-Based Loads on Power System Distortion and Losses, Volume 3: Real-Time Monitoring and Calculation of the Derating of Single-Phase Transformers Under Nonsinusoidal Operation," *Final Report*, *Electric Power Research Institute (EPRI), Energy Delivery and Utilization Division*, Research Project #: 2951-07, 4887-01, June 1999.
2. E. F. Fuchs, D. Yildirim, A. A. Fardoun, R. W. Erickson, D. Maksimovic, "A Novel Wind Power Train: An Electronically Commutated Permanent-Magnet Generator With Flux Weakening Voltage Control," *Department of Energy, National Renewable Energy Laboratory (NREL), National Wind Technology Center*, Contract No: XF-1-11009-4, October 1994.

Affiliations

Organization	Member since
IEEE Power Electronics Society	1995
IEEE Industry Applications Society	1995
IEEE Power Engineering Society	1995
IEEE Industrial Electronics Society	1995

References

Prof. E. F. Fuchs, fuchse@colorado.edu
Prof. R. W. Erickson, rwe@colorado.edu
Prof. D. Maksimovic, maksimov@colorado.edu
University of Colorado at Boulder
Dept. of Electrical and Computer Eng., Campus Box 425
Boulder, CO 80309-0425, USA

Dr. E. Muljadi, eduard_muljadi@nrel.gov
National Renewable Energy Laboratory
1617 Cole Boulevard
Golden, CO 80401, USA

Prof. P. K. Sen, Pankaj.Sen@cudenver.edu
University of Colorado at Denver, Department. of Electrical Eng.,
Campus Box 110, P.O. Box 173364, Denver, CO 80217-3364, USA