Curriculum Vitae

Jun Fan

Education:

08/1997 - 12/2000 Ph.D., December 2000, Department of Electrical and Computer Engineering, Electromagnetic Compatibility Laboratory, University of Missouri-Rolla.
Area of study: Electromagnetic Compatibility.

09/1994 - 03/1997 Master of Engineering, March 1997, Department of Electronic Engineering, Tsinghua University, Beijing, P. R. China.
Area of study: Electromagnetic Field and Microwave Technology.

09/1989 - 07/1994 Bachelor of Engineering, July 1994, Department of Electronic Engineering, Tsinghua University, Beijing, P. R. China.
Area of study: Electronic Techniques and Information Systems.

Employment Activities:

09/2012 – present	Associate Professor, Department of Electrical and Computer Engineering, Missouri University of Science and Technology, Rolla, MO
07/2007 – 08/2012	Assistant Professor, Department of Electrical and Computer Engineering, Missouri University of Science and Technology, Rolla, MO
12/20/2000 – 06/2007	Consultant Engineer, NCR Corporation, San Diego, CA
Summer 1999	Intern, MPP Engineering, NCR Corporation, San Diego, CA

Professional Activities:

Associate Editor, IEEE Transactions on Electromagnetic Compatibility, from January 10, 2012.

Associate Editor, EMC Magazine, IEEE EMC Society, from January 2012.

Member, Campus Library and Learning Resources Committee, Department Scholarship Committee, Department Graduate Committee, Department of Electrical and Computer Engineering, Missouri S&T

Vice Chair/past Secretary, IEEE EMC Society Technical Advisory Committee

Coordinator, IEEE EMC Society Video Distinguished Lecturer Program

Member/past Chair/past Secretary, IEEE EMC Society TC-9 Computational Electromagnetics

Member, IEEE EMC Society TC-10 Signal Integrity, IEEE EMC Society Awards Committee

Vice Chair/past Secretary, IEEE Rolla Subsection

Member, Working Group of the IEEE Standard P1597.1, Standard for Validation of Computational Electromagnetics Computer Modeling and Simulations

Technical Paper Chair, IEEE International Symposium on Electromagnetic Compatibility 2011-2012, 2014

Technical Program Chair, 2015 IEEE Symposium on Electromagnetic Compatibility and Signal Integrity

General Chair, 2014 IEEE International Conference on Signal and Power Integrity (an embedded conference in 2014 IEEE International Symposium on Electromagnetic Compatibility)

Technical Program Committee Member, DesignCon 2007- 2014, IEEE EDAPS 2008-2013, Asia-Pacific EMC Symposium 2010-2013

NSF Panelist, 2011

Reviewer, IEEE Transactions on Electromagnetic Compatibility/Components, Packaging and Manufacturing Technology/Advanced Packaging/ Power Electronics/ Microwave

Theory and Techniques/Mobile Computing/Electron Devices, IEEE Design & Test of Computers, IEEE Microwave and Wireless Components Letters, International Journal of Numerical Modeling, Journal of Electromagnetic Waves and Applications/Progress in Electromagnetic Research, various technical conferences

Invited Speaker/Session Organizer/Panel Organizer/Panelist/Workshop Presenter at various technical conferences

Honors & Awards:

Faculty Excellence Award, *Missouri University of Science and Technology*, 2012.

IEEE Electromagnetic Compatibility Society Certificate of Appreciation, August 2012, citation "For outstanding service to the IEEE EMC Society by serving as the Technical Paper Chair for the 2012 IEEE International Symposium on EMC".

Faculty Research Award, *Missouri University of Science and Technology*, 2011.

Symposium Best Paper Award, *IEEE International Symposium on Electromagnetic Compatibility*, Long Beach, CA, August 2011

IEEE Electromagnetic Compatibility Society Certificate of Appreciation, August 2011, citation "For outstanding service as the Technical Paper Chair for the 2011 IEEE International Symposium on EMC"

Symposium Best Paper Award, *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 2010

Symposium Best Poster Paper Award, *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 2010

DesignCon Paper Award, *DesignCon 2010*, Santa Clara, CA, February 2010

IEEE Electromagnetic Compatibility Society Technical Achievement Award, August 2009, citation "for significant contributions in the understanding of noise mechanisms and coupling paths in printed circuit board power distribution networks"

IEEE Electromagnetic Compatibility Society Certificate of Appreciation, August 2009, citation "for outstanding service to the IEEE EMC Society as a Distinguished Lecturer 2007-2008"

Commendation on teaching excellence, Missouri University of Science and Technology, for the 2007-2008 and 2012-2013 academic years

Respected Speakers Bureau, IEEE EMC Society, November 2009 - present

Distinguished Lecturer, IEEE EMC Society, 2007-2008

DesignCon Paper Award, *DesignCon 2007*, Santa Clara, CA, January 2007

IEEE Senior Member, 2006

Conference Best Paper Award, *the 16th Annual Review of Progress in Applied Computational Electromagnetics*, Monterey, CA, March 2000

Dean's Fellowship, University of Missouri-Rolla, 1997-2000

Awards received by advised students:

Student Competition Winner received by **Dazhao Liu,** IMAPS Advanced Technology Workshop on System Level Packaging, November 10-11, 2011, Palo Alto, CA, USA

IEEE EMC Society President's Memorial Award received by **Songping Wu**, 2011 IEEE International Symposium on Electromagnetic Compatibility, Long Beach, CA, August 2011

Symposium Best Student Paper Award received by **Siming Pan**, *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 2010

IEEE EMC Society President's Memorial Award received by **Siming Pan**, 2009 IEEE International Symposium on Electromagnetic Compatibility, Detroit, MI, August 2009

Leo L. Beranek Anechoic Chamber Student Travel Grant received by **Arun Chada** and **Gang Feng**, 2009 IEEE International Symposium on Electromagnetic Compatibility, Detroit, MI, August 2009

Former Advisees:

- Gang Feng, Ph.D., graduated in December 2009;
- Nitin Radhakrishnan, M.S., graduated in December 2009;
- Arun Chada, M.S., graduated in December 2009;
- Surbhi Mittal, M.S., graduated in May 2010;
- Siming Pan, M.S., graduated in December 2010;
- Fan Zhou, M.S., graduated in December 2010;
- Dazhao Liu, M.S., graduated in December 2010;
- Songping Wu, Ph.D., graduated in July 2011.
- Zhenwei Yu, Ph.D., graduated in May 2012.
- Liehui Ren, Ph.D., graduated in May 2012.
- Hanfeng Wang, Ph.D., graduated in July 2012.
- Liang Li, M.S., graduated in December 2012.
- Ji Zhang, Ph.D., graduated in May 2013.
- Dazhao Liu, Ph.D., graduated in December 2013.
- Jin Shuai, M.S., graduated in December 2013.
- Nicholas Erickson, M.S., graduated in December 2013.

US Patents:

[1] Hai Xiao, Tao Wei, Jun Fan, and Songping Wu, "COAXIAL CABLE BRAGG GRATING SENSOR," filed on April 2, 2012.

[2] Jun Fan, James L. Knighten, and Norman W. Smith, "PROVIDING AN EMBEDDED CAPACITOR IN A CIRCUIT BOARD," US 7,791,896, September 7, 2010.

[3] James L. Knighten, Norman Smith, and Jun Fan, "CROSSING CONDUCTIVE TRACES IN A PCB," US 7,652,364, January 26, 2010.

[4] Arthur R. Alexander, Jun Fan, James L. Knighten, and Norman W. Smith, "PROVIDING A RESISTIVE ELEMENT BETWEEN REFERENCE PLANE LAYERS IN A CIRCUIT BOARD," US 7,626,828, December 1, 2009.

[5] Jun Fan, Arthur Ray Alexander, James Knighten, and Norman Smith, "ADJUSTING A CHARACTERISTIC OF A CONDUCTIVE VIA STUB IN A CIRCUIT BOARD," US 7,579,925, August 25, 2009.

[6] James L. Knighten, Jun Fan, and Norman W. Smith, "USING A THRU_HOLE VIA TO IMPROVE CIRCUIT DENSITY IN A PCB," US 7,456,364, November 25, 2008.

[7] Arthur R. Alexander, James L. Knighten, and Jun Fan, "TAILORING VIA IMPEDANCE ON A CIRCUIT BOARD," US 7,435,912, October 14, 2008.

[8] Jun Fan, Arthur Ray Alexander, Norman W. Smith, and James L. Knighten, "PROVIDING DECOUPLING CAPACITORS IN A CIRCUIT BOARD," US 7,271,348, September 18, 2007.

[9] Jun Fan, James L. Knighten, Arthur R. Alexander, and Norman W. Smith, "METHOD OF FORMING A CAPACITOR ASSEMBLY IN A CIRCUIT BOARD," US 7,216,422, May 15, 2007.

[10] James L. Knighten, Jun Fan, Norman W. Smith, and Arthur R. Alexander, "CIRCUIT BOARD HAVING SEGMENTS WITH DIFFERENT SIGNAL SPEED CHARACTERISTICS," US 7,196,906, March 27, 2007.

[11] Arthur R. Alexander, James L. Knighten, and Jun Fan, "ENHANCING SIGNAL PATH CHARACTERISTICS IN A CIRCUIT BOARD," US 7,045,719, May 16, 2006.

[12] James L. Knighten, and Jun Fan, "PROVIDING SHIELDS FOR SYSTEMS," US 6,912,135, June 28, 2005.

[13] Jun Fan, James L. Knighten, Arthur R. Alexander, and Norman W. Smith, "REDUCING NOISE EFFECTS IN CIRCUIT BOARDS," US 6,844,505, January 18, 2005.

[14] Jun Fan, Arthur R. Alexander, James L. Knighten, and Norman W. Smith, "CHARACTERIZING MULTI-PORT CASCADED NETWORKS", US 6,785,625, August 31, 2004.

Publications

Refereed Journal Articles:

[1] J. Huang, T. Wei, J. Fan, and H. Xiao, "Coaxial cable Bragg grating assisted microwave coupler," *Review of Scientific Instruments*, vol. 85, issue 1, January 2014.

[2] H. Wang, S. Pan, J. Kim, A. E. Ruehli, and J. Fan, "Capacitance calculation for via structures using an integral equation method based on partial capacitance," *IEEE Transactions on Components, Packaging and Manufacturing Technology*, vol. 3, no. 12, pp. 2134-2146, December 2013.

[3] S. Wu, and J. Fan, "Modeling of crosstalk between two nonparallel striplines on adjacent layers," *IEEE Transactions on Electromagnetic Compatibility*, vol. 55, no. 6, pp. 1302-1310, December 2013.

[4] H. Wang, V. Khilkevich, Y. Zhang, and J. Fan, "Estimating radio-frequency interference to an antenna due to near-field coupling using decomposition method based on reciprocity," *IEEE Transactions on Electromagnetic Compatibility*, vol. 55, no. 6, pp. 1125-1131, December 2013.

[5] H.-H. Chuang, G.-H. Li, E. Song, H.-H. Park, H.-T. Jang, H.-B. Park, Y.-J. Zhang, D. Pommerenke, T.-L. Wu, and J. Fan, "A magnetic-field resonant probe with enhanced sensitivity for RF interference applications," *IEEE Transactions on Electromagnetic Compatibility*, vol. 55, no. 6, pp. 991- 998, December 2013.

[6] J. Huang, T. Wang, L. Hua, J. Fan, H. Xiao, and M. Luo, "A coaxial cable Fabry-Perot interferometer for sensing applications," *Sensors* 2013, 13(11), pp. 15252-15260, November 2013.

[7] J. Kim, Y. Takita, K. Araki, and J. Fan, "Improved target impedance for power distribution network design with power traces based on rigorous transient analysis in a handheld device," *IEEE Transactions on Components, Packaging and Manufacturing Technology*, vol. 3, no. 9, pp. 1554-1563, September 2013.

[8] H. Wang, and J. Fan, "Modeling local via structures using innovative PEEC formulation based on cavity Green's Functions with wave port excitation," *IEEE Transactions on Microwave Theory and Techniques*, vol. 61, no. 5, pp. 1748-1757, May 2013.

[9] W. Yao, S. Pan, B. Achkir, J. Fan, and L. He, "Modeling and application of multi-port TSV networks in 3-D IC," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, vol. 32, no. 4, pp. 487-496, April 2013.

[10] J. Zhang, K. Kam, J. Min, V. Khilkevich, D. Pommerenke, and J. Fan, "An effective method of probe calibration in phase-resolved near-field scanning for EMI application," *IEEE Transactions on Instrumentation and Measurement*, vol. 62, issue 3, pp. 648 – 658, March 2013.

[11] Z. Yu, J. A. Mix, S. Sajuyigbe, K. P. Slattery, D. Pommerenke, and J. Fan, "Heat-sink modeling and design with dipole moments representing IC excitation," *IEEE Transactions on Electromagnetic Compatibility*, vol. 55, no. 1, pp. 168- 174, February 2013.

[12] Z. Yu, J. A. Mix, S. Sajuyigbe, K. P. Slattery, and J. Fan, "An improved dipole-moment model based on near-field scanning for characterizing near-field coupling and far-field radiation from an IC," *IEEE Transactions on Electromagnetic Compatibility*, vol. 55, no. 1, PP. 97-108, February 2013.

[13] C. Hwang, J. Kim, B. Achkir, and J. Fan, "Analytical transfer functions relating power and ground voltage fluctuations to jitter at a single-ended full-swing buffer," *IEEE Transactions on Components, Packaging and Manufacturing Technology*, vol. 3, no.1, pp. 113-125, January 2013.

[14] S. Pan, and J. Fan, "Characterization of via structures in multilayer printed circuit boards with an equivalent transmission-line model," *IEEE Transactions on Electromagnetic Compatibility*, Vol. 54, No. 5, pp. 1077-1086, October 2012.

[15] J. Kim, L. Li, S. Wu, H. Wang, Y. Takita, H. Takeuchi, K. Araki, J. Fan, and J. L. Drewniak, "Closed-form expressions for the maximum transient noise voltage caused by an IC switching

current on a power distribution network," *IEEE Transactions on Electromagnetic Compatibility*, Vol. 54, No. 5, pp. 1112-1124, October 2012.

[16] S. Muller, X. Duan, M. Kotzev, Y. Zhang, J. Fan, X. Gu, Y. H. Kwark, R. Rimolo-Donadio, H.-D. Bruns, and C. Schuster, "Accuracy of physics-based via models for simulation of dense via arrays," *IEEE Transactions on Electromagnetic Compatibility*, Vol. 54, No. 5, pp. 1125-1136, October 2012.

[17] J. Huang, T. Wei, S. Wu, X. Lan1, J. Fan, and H. Xiao, "Coaxial cable Bragg Grating sensors for structural health monitoring," *International Journal of Pavement Research and Technology*, vol. 5, pp. 338-342, 2012.

[18] Y.-J. Zhang, and J. Fan, "A generalized multiple scattering method for dense vias with axially-anisotropic modes in an arbitrarily shaped plate pair," *IEEE Transactions on Microwave Theory and Techniques*, vol. 60, no. 7, pp. 2035-2045, July 2012.

[19] S. Wu, and J. Fan, "Analytical prediction of crosstalk among vias in multilayer printed circuit boards," *IEEE Transactions on Electromagnetic Compatibility*, vol. 54, no. 2, pp. 413-420, April 2012.

[20] Y.-J. Zhang, A. R. Chada, and J. Fan, "An improved multiple scattering method for via structures with axially isotropic modes in an irregular plate pair," *IEEE Transactions on Electromagnetic Compatibility*, vol. 54, no. 2, pp. 457-465, April 2012.

[21] Y. Hu, Y. Zhang, and J. Fan, "Equivalent circuit model of coaxial probes for patch antennas," *Progress in Electromagnetic Research B*, Vol. 38, pp. 281-296, 2012.

[22] T. Wei, S. Wu, H. Xiao, and J. Fan, "Coaxial cable Bragg grating," *Applied Physics Letters*, vol. 99, Issue 11, 113517, September 2011.

[23] J. Kim, J. Fan, A. E. Ruehli, J. Kim, and J. L. Drewniak, "Inductance calculations for plane-pair area fills with vias in a power distribution network using a cavity model and partial inductances," *IEEE Transactions on Microwave Theory and Techniques*, vol. 59, no. 8, pp. 1909-1924, August 2011.

[24] J. Kim, K. Shringarpure, J. Fan, J. Kim, and J. L. Drewniak, "Equivalent circuit model extraction for power bus design in multi-layer PCBs with Via Arrays," *IEEE Microwave and Wireless Components Letters*, vol. 21, no. 2, February 2011, pp. 62-64.

[25] D. Liu, A. Nandy, F. Zhou, W. Huang, J. Xiao, B. Seol, J. Lee, J. Fan, and D. Pommerenke, "Full wave simulation of an electrostatic discharge generator discharging in air-discharge mode into a product", *IEEE Transactions on Electromagnetic Compatibility*, vol. 53, no. 1, pp. 28-37, February 2011.

[26] G. Feng, and J. Fan, "An extended cavity method to analyze slot coupling between printed circuit board cavities," *IEEE Transactions on Electromagnetic Compatibility*, vol. 53, no. 1, pp. 140-149, February 2011.

[27] Y. Zhang, G. Feng, and J. Fan, "A novel impedance definition of a parallel plate pair for an intrinsic via circuit model," *IEEE Transactions on Microwave Theory and Techniques*, vol. 58, no. 12, pp.3780-3789, December 2010.

[28] F. De Paulis, Y. Zhang, and J. Fan, "Signal/power integrity analysis for multilayer printed circuit boards using cascaded S-parameters," *IEEE Transactions on Electromagnetic Compatibility*, vol. 52, no. 4, pp. 1008-1018, November 2010.

[29] J. Kim, L. Ren, and J. Fan, "Physics-based inductance extraction for via arrays in parallel planes for power distribution network design," *IEEE Transactions on Microwave Theory and Techniques*, vol. 58, no. 9, pp. 2434-2447, September 2010.

[30] Y. Zhang, and J. Fan, "An intrinsic circuit model for multiple vias in an irregular plate pair through rigorous electromagnetic analysis," *IEEE Transactions on Microwave Theory and Techniques*, vol. 58, no. 8, pp. 2251-2265, August 2010.

[31] G. Feng, and J. Fan, "Analysis of SSN noise coupling in multilayer power/ground planes with segmentation method and cavity model," *IEEE Transactions on Electromagnetic Compatibility*, vol. 52, no. 3, pp. 699-711, August 2010.

[32] Y. Zhang, Z. Oo, X. Wei, E. Liu, J. Fan, and E. Li, "Systematic microwave network analysis for multilayer printed circuit boards with vias and decoupling capacitors," *IEEE Transactions on Electromagnetic Compatibility*, vol. 52, no. 2, pp. 401-409, May 2010.

[33] J. Fan, X. Ye, J. Kim, B. Archambeault, and A. Orlandi, "Signal integrity design for high-speed digital circuits: progress and directions," *IEEE Transactions on Electromagnetic Compatibility*, vol. 52, no. 2, pp. 392-400, May 2010. (invited but referred)

[34] R. Rimolo-Donadio, X. Gu, Y. H. Kwark, M. B. Ritter, B. Archambeault, F. De Paulis, Y. Zhang, J. Fan, H. Bruns, and C. Schuster, "Physics-based via and trace models for efficient link simulation on multilayer structures up to 40 GHz", *IEEE Transactions on Microwave Theory and Techniques*, vol. 57, No. 8, pp. 2072-2083, August 2009.

[35] Y. Zhang, R. Rimolo-Donadio, C. Schuster, E. Li, and J. Fan, "Extraction of via-plate capacitance of an eccentric via by an integral approximation method", *IEEE Microwave and Wireless Components Letters*, vol. 19, issue 5, pp. 275-277, May 2009.

[36] Y. Zhang, J. Fan, G. Selli, M. Cocchini, and F. De Paulis, "Analytical evaluation of via-plate capacitance for multilayer packages or PCBs," *IEEE Transactions on Microwave Theory and Techniques*, Vol. 56, No. 9, pp. 2118-2128, September 2008.

[37] C. Wang, J. Mao, G. Selli, S. Luan, L. Zhang, J. Fan, D. J. Pommerenke, R. E. DuBroff, and J. L. Drewniak, " An efficient approach for power delivery network design with closed-form expressions for parasitic interconnect inductances," *IEEE Transactions on Advanced Packaging*, Vol. 29, No. 2, pp. 320-334, May 2006.

[38] J. Fan, J. L. Drewniak, and J. L. Knighten, ``Lumped-circuit model extraction for vias in multilayer substrates,'' *IEEE Transactions on Electromagnetic Compatibility*, Vol. 45, No. 2, pp. 272-280, May 2003.

[39] W. Cui, J. Fan, Y. Ren, H. Shi, J. L. Drewniak, and R. E. DuBroff, ``DC power-bus noise isolation with power-plane segmentation," *IEEE Transactions on Electromagnetic Compatibility*, Vol. 45, No. 2, pp. 436-443, May 2003.

[40] J. Fan, W. Cui, J. L. Drewniak, T. P. Van Doren, and J. L. Knighten, "Estimating the noise mitigation effect of local decoupling in printed circuit boards," *IEEE Transactions on Advanced Packaging*, Vol. 25, No. 2, pp. 154-165, May 2002.

[41] J. Fan, J. L. Drewniak, J. L. Knighten, N. W. Smith, A. Orlandi, T. P. Van Doren, T. H. Hubing, and R. E. DuBroff, ``Quantifying SMT decoupling capacitor placement in DC power bus design for multi-layer PCBs,'' *IEEE Transactions on Electromagnetic Compatibility*, Vol. 43, No. 4, pp. 588-599, November 2001.

[42] J. Fan, J. L. Drewniak, H. Shi, and J. L. Knighten, `DC power-bus modeling and design with a mixed-potential integral equation formulation and circuit extraction," *IEEE Transactions on Electromagnetic Compatibility*, Vol. 43, No. 4, pp. 426-436, November 2001.

[43] J. Fan, H. Shi, A. Orlandi, J. L. Knighten, and J. L. Drewniak, "Modeling DC power-bus structures with vertical discontinuities using a circuit extraction approach based on a mixed-potential integral equation formulation," *IEEE Transactions on Advanced Packaging*, Vol. 24, No. 2, pp. 143-157, May 2001.

Invited Journal Articles:

[1] T. Wu, J. Fan, F. de Paulis, C. Wang, A. C. Scogna, and A. Orlandi, "Mitigation of noise coupling in multilayer high-speed PCB: state of the art modeling methodology and EBG technology," IEICE Transactions on Communications, Vol. E93-B, No. 07, pp. 1678-1689, July 2010.

Professional Journal Articles:

[1] J. Fan, "Far-end crosstalk," *IEEE EMC Society Newsletter*, Issue No. 230, Summer 2011, pp. ???
[2] J. Fan, "Crosstalk estimation for stripline traces crossing a split," *IEEE EMC Society Newsletter*, Issue No. 229, Spring 2011, pp. 69-71.
[3] J. L Knighten, B. Archambeault, J. Fan, G. Selli, A. Rajagopal, S. Connor, and J. L. Drewniak, "PDN Design Strategies: IV. Sources of PDN Noise," *IEEE EMC Society Newsletter*, Issue No. 212, Winter 2007, pp. 54-64.
[4] J. L. Knighten, B. Archambeault, J. Fan, G. Selli, L. Xue, S. Connor, and J. L. Drewniak, "PDN Design Strategies: III. Planes and Materials – Are They Important Factors in Power Bus Design?," *IEEE EMC Society Newsletter*, Issue No. 210, Summer 2006, pp. 58-69.
[5] J. L. Knighten, B. Archambeault, J. Fan, G. Selli, L. Xue, S. Connor, and J. L. Drewniak, "PDN Design Strategies: II. Ceramic SMT Decoupling Capacitors – Does Location Matter?," *IEEE EMC Society Newsletter*, Issue No. 208, Winter 2006, pp. 56-67.
[6] J. L. Knighten, B. Archambeault, J. Fan, G. Selli, S. Connor, and J. L. Drewniak, "PDN Design Strategies: I. Ceramic SMT Decoupling Capacitors – What Values Should I Choose?," *IEEE EMC Society Newsletter*, Issue No. 207, Fall 2005, pp. 46-53.

Conference Papers:

[1] S. Shinde, A. Radchenko, J. Pan, S.-H., Kang, D. Kim, S. Lee, J. Fan, and D. Pommerenke, "Investigation of interference in a mobile phone from a DC-to-DC converter," *IEEE International Symposium on Electromagnetic Compatibility*, Denver, CO, August 5-9, 2013.
[2] S. Shinde, L. Liang, K. Ito, Y. Kato, N. Mukai, K. Araki, and J. Fan, "Investigating intra-system radio-frequency interference from high-speed traces to a GPS patch antenna," *IEEE International Symposium on Electromagnetic Compatibility*, Denver, CO, August 5-9, 2013.
[3] J. Pan, G. Li, Y. Zhou, Y. Bai, X. Yu, Y. Zhang, and J. Fan, "Measurement validation of the dipole-moment model for IC radiated emissions," *IEEE International Symposium on Electromagnetic Compatibility*, Denver, CO, August 5-9, 2013.
[4] N. Erickson, K. Shringarpure, J. Fan, B. Achkir, S. Pan, and C. Hwang, "De-embedding techniques for transmission lines: An exploration, review, and proposal," *IEEE International Symposium on Electromagnetic Compatibility*, Denver, CO, August 5-9, 2013.
[5] S. Jin, J. Zhang, and J. Fan, "Optimization of the transition from connector to PCB board," *IEEE International Symposium on Electromagnetic Compatibility*, Denver, CO, August 5-9, 2013.
[6] J. Li. J. Fan, and D. Pommerenke, "The application of spark gaps on audio jack for ESD protection," *IEEE International Symposium on Electromagnetic Compatibility*, Denver, CO, August 5-9, 2013.
[7] F. Lin, J. Fan, Y. Qi. And Y. Jiao, "Study of cross polarization of tapered slot antenna for EMC measurements," *IEEE International Symposium on Electromagnetic Compatibility*, Denver, CO, August 5-9, 2013.
[8] A. R. Chada, S. Wu, J. Fan, J. L. Drewniak, B. Mutnury, D. N. de Araujo, "Efficient complex broadside coupled trace modeling and estimation of crosstalk impact using statistical BER analysis for high volume, high performance printed circuit board designs," *The 63rd Electronic Components and Technology Conference (ECTC)*, Las Vegas, NV, May 28-31, 2013.
[9] K. Shringarpure, S. Pan, J. Kim, B. Achkir, B. Archambeault, J. Fan, and J. L. Drewniak, "Innovative PDN design guidelines for practical high layer-count PCBs," *DesignCon 2013*, January 28-31, 2013.
[10] J. Kim, D. Shin, J. Lee, S. Cho, C. Hwang, and J. Fan, "Statistical BER analysis due to supply voltage fluctuations at a single-ended buffer," *DesignCon 2013*, January 28-31, 2013.
[11] A. R. Chada, S. Wu, J. Fan, J. L. Drewniak, M. Bhyrav, and D. N. de Araujo, "Modeling broadside coupled traces using equivalent per unit length (Eq PUL) RLGC model," *2012 IEEE 21st Conference on Electrical Performance of Electronic Packaging and Systems*, Tempe, AZ, October 21-24, 2012.
[12] L. Li, A. E. Ruehli, and J. Fan, "Accurate and efficient computation of power plane pair inductance," *2012 IEEE 21st Conference on Electrical Performance of Electronic Packaging and Systems*, Tempe, AZ, October 21-24, 2012.
[13] D. Liu, S. Pan, B. Achkir, and J. Fan, "Fast admittance computation for TSV arrays," *IEEE International Symposium on Electromagnetic Compatibility*, Pittsburgh, PA, August 5-10, 2012.

[14] L. Li, C. Hwang, T. Wang, Y. Takita, H. Takeuchi, K. Araki, and J. Fan, "Switching-current measurement for multiple ICs sharing a common power island structure," *IEEE International Symposium on Electromagnetic Compatibility*, Pittsburgh, PA, August 5-10, 2012.

[15] H. Wang, Y. Zhang, A. Ruehli, and J. Fan, "Capacitance calculation of TSVs using an integral equation method based on partial capacitances," *IEEE International Symposium on Electromagnetic Compatibility*, Pittsburgh, PA, August 5-10, 2012.

[16] J. Li, Y. Zhang, A. Gafarov, S. De, M. Y. Koledintseva, J. Marchand, D. Hess, T. Durant, E. Nickerson, J. L. Drewniak, and J. Fan, "EMI reduction evaluation with flexible absorbing materials and ferrite cores applied on cables," *IEEE International Symposium on Electromagnetic Compatibility*, Pittsburgh, PA, August 5-10, 2012.

[17] J. Li, M. Y. Koledintseva, A. Razmadze, A. Gafarov, Y. Zhang, J. L. Drewniak, J. Fan, and S. Jing, "Permeability and permittivity uncertainty effects in modeling absorbing coatings and ferrites on cables," *IEEE International Symposium on Electromagnetic Compatibility*, Pittsburgh, PA, August 5-10, 2012.

[18] J. Zhang, A. C. Scogna, J. Fan, B. Archambeault, J. L. Drewniak, and A. Orlandi, "A hybrid stack-up of printed circuit board for high-speed networking systems," *IEEE International Symposium on Electromagnetic Compatibility*, Pittsburgh, PA, August 5-10, 2012.

[19] Y. Zhang, S. Jing, and J. Fan, "Studies of TEM mode assumption on via holes in via modelings," *2012 Asia-Pacific Symposium on Electromagnetic Compatibility & Technical Exhibition on EMC, RF/Microwave Measurement & Instrumentation*, Singapore, May 21-24, 2012.

[20] J. Huang, T. Wei, X. Lan, J. Fan, and H. Xiao, "Coaxial cable Bragg grating sensors for large strain measurement with high accuracy," *19th Annual International Symposium on Smart Structures and Materials + Nondestructive Evaluation and Health Monitoring*, San Diego, CA, March 11-15, 2012.

[21] S. Wu, T. Wei, J. Huang, H. Xiao, and J. Fan, "A study on Q-factor of CCBG sensors by coupled mode theory," *19th Annual International Symposium on Smart Structures and Materials + Nondestructive Evaluation and Health Monitoring*, San Diego, CA, March 11-15, 2012.

[22] X. Gu, Y. H. Kwark, D. Liu, Y. Zhang, J. Fan, R. Rimolo-Donadio, S. Muller, C. Schuster, F. de Paulis, "Backplane channel design optimization: recasting a 3GB/s link to operate at 25GB/s and above," *DesignCon 2012*, January 30 – February 2, 2012.

[23] Y. Zhang, and J. Fan, "Cylindrical harmonics and via models for high-speed multilayer printed circuit boards," *2011 IEEE Electrical Design of Advanced Packaging & Systems Symposium*, Hangzhou, China, December 12-14, 2011.

[24] D. Liu, Y. Zhang, and J. Fan, "Removing passivity violations in via modeling with improved impedance calculations for an infinitely large parallel-plane pair," *IMAPS Advanced Technology Workshop on System Level Packaging*, Palo Alto, CA, USA, November 10-11, 2011. **Student Competition Winner.**

[25] H. Wang, A. Ruehli, and J. Fan, "Capacitance calculation for a shared-antipad via structure using an integral equation method based on partial capacitance," *20th Conference on Electrical Performance of Electronic Packaging and Systems*, San Jose, CA, October 23-26, 2011.

[26] D. Liu, J. Chen, Z. Yang, and J. Fan, "Statistical estimation of root mean square crosstalk in SFP+ cable evaluations," *IEEE International Symposium on Electromagnetic Compatibility*, Long Beach, CA, August 14-19, 2011. **Symposium Best Paper Award.**

[27] L. Li, J. Kim, H. Wang, S. Wu, Y. Takita, H. Takeuchi, K. Araki, and J. Fan, "Measurement of multiple switching current components through a bulk decoupling capacitor using a lab-made low-cost current probe," *IEEE International Symposium on Electromagnetic Compatibility*, Long Beach, CA, August 14-19, 2011.

[28] Z. Yu, Y. Zhang, S. Sajuyigbe, R. Camacho, J. A. Mix, K. Slattery, M. S. Halligan, and J. Fan, "Near-field H to E transformation using plane wave spectrum theory," *IEEE International Symposium on Electromagnetic Compatibility*, Long Beach, CA, August 14-19, 2011.

[29] H. Li, V. Khilkevich, D. Pommerenke, Y. Zhang, and J. Fan, " On the possibility to detect and visualize electromagnetic coupling paths," *IEEE International Symposium on Electromagnetic Compatibility*, Long Beach, CA, August 14-19, 2011.

[30] J. Shen, H. Wang, J. Chen, and J. Fan, "Analysis of via impedance variations with a polynomial chaos method," *IEEE International Symposium on Electromagnetic Compatibility*, Long Beach, CA, August 14-19, 2011.

[31] J. Kim, S. De, K. Shringarpure, S. Pan, B. Achkir, J. Fan, and J. L. Drewniak, "Analytical expression for transfer function of supply voltage fluctuation to jitter at a single-ended buffer," *IEEE International Symposium on Electromagnetic Compatibility*, Long Beach, CA, August 14-19, 2011.

[32] B. Archambeault, J. Kim, S. Connor, and J. Fan, "Optimizing decoupling capacitor placement to reduce effective inductance," *IEEE International Symposium on Electromagnetic Compatibility*, Long Beach, CA, August 14-19, 2011.

[33] T. Wang, Y. Shi, S. Wu, and J. Fan, "Estimation of crosstalk among multiple stripline traces crossing a split by compressed sensing," *IEEE International Symposium on Electromagnetic Compatibility*, Long Beach, CA, August 14-19, 2011.

[34] S. Wu, H. Shi, M. Herndon, B. Cornelius, M. Halligan, and J. Fan, "Modeling and analysis of a trace referenced to a meshed ground plane," *IEEE International Symposium on Electromagnetic Compatibility*, Long Beach, CA, August 14-19, 2011.

[35] K. Han, X. Gu, Y. H. Kwark, Z. Yu, D. Liu, B. Archambeault, S. R. Connor, and J. Fan, "Parametric study on the effect of asymmetry in multip-channel differential signaling," *IEEE International Symposium on Electromagnetic Compatibility*, Long Beach, CA, August 14-19, 2011.

[36] T. Wang, J. Kim, J. Fan, and Y. Shi, "Compressed sensing based analytical modeling for through-silicon-via pairs," *54th IEEE International Midwest Symposium on Circuits and Systems*, Seoul, Korea, August 7-10, 2011.

[37] J. Kim, J. L. Drewniak, and J. Fan, "Power/ground pin-map design for power integrity," *ASME 2011 Pacific Rim Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Systems, MEMS and NEMS*, Portland, OR, July 6-8, 2011.

[38] D. Liu, J. Chen, Z. Yang, and J. Fan, "Quantifying high-speed channel performance using a novel time-domain convolution method," *2011 Asia-Pacific Symposium on Electromagnetic Compatibility*, Jeju Island, Korea, May 16-19, 2011.

[39] H. Wang, J. Kim, Y. Shi, and J. Fan, "The effects of substrate doping density on the electrical performance of through-silicon-via (TSV)," *2011 Asia-Pacific Symposium on Electromagnetic Compatibility*, Jeju Island, Korea, May 16-19, 2011.

[40] S. Wu, M. Herndon, H. Shi, B. Cornelius, and J. Fan, "Crosstalk among multiple stripline traces crossing a split," *DesignCon 2011*, Santa Clara, CA, January 31 – February 3, 2011.

[41] J. Kim, E. Song, J. Fan, J. Kim, and J. L. Drewniak, "IC noise source for dynamic PDN assessment," *DesignCon 2011*, Santa Clara, CA, January 31 – February 3, 2011.

[42] X. Gu, Y. Kwark, Y. Zhang, J. Fan, A. Ruehli, M. Kotzev, S. Muller, R. Rimolo-Donadio, C. Schuster, and B. Archambeault, "Validation and application of physics-based via models to dense via arrays," *DesignCon 2011*, Santa Clara, CA, January 31 – February 3, 2011.

[43] Y. Zhang, and J. Fan, "Recent development of via models: hybrid circuit and field analysis," *2010 IEEE Electrical Design of Advanced Package & Systems Symposium*, Singapore, December 7-9, 2010.

[44] J. Zhang, B. Chen, H. Wang, J. Fan, and A. Orlandi, "Stub length prediction for back-drilled vias using a fast via tool," *2010 IEEE Electrical Design of Advanced Package & Systems Symposium*, Singapore, December 7-9, 2010.

[45] B. Archambeault, K. Shringarpure, J. Fan, and S. Connor, "Fast and accurate multi-layer PDN analysis for power integrity and EMC," *43rd International Symposium on Microelectronics (IMAPS2010)*, Raleigh, North Carolina, October 31-November 4, 2010.

[46] H. Wang, Y. Zhang, J. L. Drewniak, J. Fan, and B. Archambeault, "Capacitance calculation for offset via structures using an integral approximation approach based on finite element method," *43rd International Symposium on Microelectronics (IMAPS2010)*, Raleigh, North Carolina, October 31-November 4, 2010.

[47] Q. B. Chen, J. Zhang, K. Qiu, D. Padilla, Z. Yang, A. C. Scogna, and J. Fan, "Enabling terabit per second switch linecard design through chip/package/PCB co-design," *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 25-30, 2010.

[48] N. Radhakrishnan, B. Achkir, J. Fan, and J. L. Drewniak, "Stressed jitter analysis for physical link characterization," *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 25-30, 2010.

[49] H. Wang, A. Ruehli, and J. Fan, "Modeling via transitions with a Hybrid method," *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 25-30, 2010.

[50] S. Pan, H. Wang, and J. Fan, "Applying feature selective validation (FSV) as an objective function for data optimization," *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 25-30, 2010.

[51] J. Zhang, Q. B. Chen, J. Fan, J. L. Drewniak, A. Orlandi, and B. Archambeault, "DC blocking via structure optimization and measurement correlation for SerDes channels," *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 25-30, 2010.

[52] J. Shen, H. Wang, J. Chen, and J. Fan, "Analyzing via impedance variations with a stochastic collation method," *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 25-30, 2010.

[53] F. Zhou, A. Ruehli, and J. Fan, "Efficient Mid-Frequency Plane Inductance Computation," *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 25-30, 2010.

[54] S. Pan, J. Kim, S. Kim, J. Park, H. Oh, and J. Fan, "An equivalent three-dipole model for IC radiated emissions based on TEM cell measurements," *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 25-30, 2010. **Symposium Best Paper Award.**

[55] Z. Yu, J. Koo, J. A. Mix, K. P. Slattery, and J. Fan, "Extracting physical IC models using near-field scanning," *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 25-30, 2010. **Symposium Best Poster Paper Award.**

[56] S. Wu, K. Kam, D. Pommerenke, B. Cornelius, H. Shi, M. Herndon, and J. Fan, "Investigation of noise coupling from switching power supply to signal nets," *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 25-30, 2010.

[57] S. Pan, J. Zhang, Q. B. Chen, and J. Fan, "Equivalent transmission-line model for vias connected to striplines in multilayer printed circuit boards," *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 25-30, 2010. **Symposium Best Student Paper Award.**

[58] Y. Hayashi, S. Wu, J. Fan, T. Mizuki, and H. Sone, "Modeling connector contact condition using a contact failure model with equivalent inductance," *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 25-30, 2010.

[59] F. Zhou, S. Wu, D. Pommerenke, Y. Kayano, H. Inoue, K. Tan, and J. Fan, "Improvements in GMI probe design for time-domain transient current measurements," *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 25-30, 2010.

[60] J. Kim, S. Wu. H. Wang, Y. Takita, H. Takeuchi, K. Araki, G. Feng, and J. Fan, "Improved target impedance and IC transient current measurement for power distribution network design," *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 25-30, 2010 (**Symposium Best Paper finalist**).

[61] A. Orlandi, F. De Paulis, L. Raimondo, J. Fan, and L. Ren, "Equivalent circuit models for evaluation of bandgap limits for planar electromagnetic bandgap structures," *IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, July 25-30, 2010.

[62] J. Kim, B. Archambeault, J. L. Drewniak, and J. Fan, "Analysis of mutual inductance effect between decoupling capacitors on planar power bus," *2010 Asia-Pacific Symposium on Electromagnetic Compatibility*, Beijing, China, April 12-16, 2010.

[63] N. Karim, J. Mao, and J. Fan, "Improving electromagnetic compatibility performance of packages and SiP modules using a conformal shielding solution," *2010 Asia-Pacific Symposium on Electromagnetic Compatibility*, Beijing, China, April 12-16, 2010.

[64] Z. Yu, J. Fan, S. Connor, B. Archambeault, and J. L. Drewniak, "Modeling of noise coupling inside multilayer printed circuit boards using cavity model and segmentation technique," *2010 Asia-Pacific Symposium on Electromagnetic Compatibility*, Beijing, China, April 12-16, 2010.

[65] F. Zhou, S. Wu, D. Pommerenke, Y. Kayano, H. Inoue, K. Tan, and J. Fan, "Measuring IC switching current waveforms using a GMI probe for power integrity studies," *2010 Asia-Pacific Symposium on Electromagnetic Compatibility*, Beijing, China, April 12-16, 2010.

[66] S. Connor, L. Ren, J. Kim, B. Archambeault, J. Fan, and J. L. Drewniak, "Using the cavity resonance method for fast calculation of power plane impedance," *DesignCon 2010*, Santa Clara, CA, February 1-4, 2010.

[67] X. Gu, R. Rimolo-Donadio, Z. Yu, F. de Paulis, Y. H. Kwark, M. Cocchini, M.B. Ritter, B. Archambeault, A. Ruehli, J. Fan, and C. Schuster, "Fast physics-based via and trace models for signal and power integrity co-analysis," *DesignCon 2010*, Santa Clara, CA, February 1-4, 2010. **DesignCon Paper Award.**

[68] Y. Zhang, E. Li, Z. Oo, W. Zhang, E. Liu, X. Wei, and J. Fan, "Analytical formulas for the barrel-plate and pad-plate capacitance in the physics-based via circuit model for signal integrity analysis of PCBs," *Asia-Pacific Microwave Conference 2009*, December 7-10, 2009, Singapore.

[69] Y. Zhang, E. Li, and J. Fan, "Closed-form expression of self/mutual power-bus impedances in a finite circular plate pair," *2009 IEEE Electrical Design of Advanced Packaging and Systems Symposium*, Hong Kong, China, December 2-4, 2009.

[70] Y. Hayashi, S. Wu, J. Fan, T. Mizuki, and H. Sone, "Effect of contact point distribution to the high-frequency impedance on a coaxial connector," *IS-EMD2009 (9th International Session on Electro-Mechanical Devices)*, Tokyo, Japan, November 19-20, 2009.

[71] J. Kim, J. Kim, L. Ren, J. Fan, J. Kim, and J. L. Drewniak, "Extraction of equivalent inductance in package-PCB hierarchical power distribution network," *18th Conference on Electrical Performance of Electronic Packaging*, Portland, OR, October 19-21, 2009.

[72] A. Chada, Y. H. Kwark, X. Gu, and J. Fan, "Model-to-hardware correlation of disk resonators for via-array modeling in high-speed PCBs," *18th Conference on Electrical Performance of Electronic Packaging*, Portland, OR, October 19-21, 2009.

[73] Y. Kayano, G. Feng, J. Fan, and H. Inoue, "Physics-based equivalent circuit model for predicting EM radiation from stripline structure with one gapped reference plane," *2009 IEICE Society Conference*, September 15-18, Japan.

[74] S. Pan, H. Wang, and J. Fan, "Comparison among different via models based on feature selective validation technique," *IEEE International Symposium on Electromagnetic Compatibility*, Austin, TX, August 17-21, 2009.

[75] S. Pan, and J. Fan, "Equivalent mixed-mode characteristic impedances for differential signal vias," *IEEE International Symposium on Electromagnetic Compatibility*, Austin, TX, August 17-21, 2009 (**Symposium Best Paper finalist**).

[76] S. Wu, and J. Fan, "Investigation of crosstalk among vias," *IEEE International Symposium on Electromagnetic Compatibility*, Austin, TX, August 17-21, 2009.

[77] L. Ren, J. Kim, G. Feng, B. Archambeault, J. L. Knighten, J. L. Drewniak, and J. Fan, "Frequency-dependent via inductances for accurate power distribution network modeling," *IEEE International Symposium on Electromagnetic Compatibility*, Austin, TX, August 17-21, 2009.

[78] H. Wang, W. Cheng, J. Zhang, J. Fisher, L. Zhu, J. L. Drewniak, and J. Fan, "Investigation of mixed-mode input impedance of multi-layer differential vias for impedance matching with traces," *IEEE International Symposium on Electromagnetic Compatibility*, Austin, TX, August 17-21, 2009.

[79] A. R. Chada, Y. Zhang, G. Feng, J. L. Drewniak, and J. Fan, "Impedance of an infinitely large parallel-plane pair and its applications in engineering modeling," *IEEE International Symposium on Electromagnetic Compatibility*, Austin, TX, August 17-21, 2009 (**Leo L. Beranek Anechoic Chamber Student Travel Grant Award**).

[80] Y. Zhang, E. Li, X. Gao, A. R. Chada, and J. Fan, "Calculation of the via-plate capacitance of a via with pad using finite difference method for signal/power integrity analysis", *2009 International Symposium on Electromagnetic Compatibility*, Kyoto, Japan, July 20-24, 2009.

[81] S. Pan, J. Fan, and J. L. Drewniak, "Equivalent characteristic impedance and propagation constant for multi-layer via structures," *2009 International Symposium on Electromagnetic Compatibility*, Kyoto, Japan, July 20-24, 2009.

[82] S. Wu, S. Kim, J. S. Park, I. Choi, and J. Fan, "Lumped resonances and the corresponding noise coupling mechanism in Flex PCBs," *2009 International Symposium on Electromagnetic Compatibility*, Kyoto, Japan, July 20-24, 2009.

[83] X. Gu, F. De Paulis, R. Rimolo-Donadio, K. Shringarpure, Y. Zhang, B. Archambeault, S. Connor, Y. H. Kwark, M. B. Ritter, J. Fan, and C. Schuster, "Fully analytical methodology for fast end-to-end link analysis on complex printed circuit boards including signal and power integrity effects," *DesignCon 2009*, Santa Clara, CA, February 2-5, 2009.

[84] S. Cicerone, A. Orlandi, B. Archambeault, S. Connor, J. Fan, and J. L. Drewniak, "Cavities' identification algorithm for power integrity analysis of complex boards," *20th International Zurich Symposium on Electromagnetic Compatibility*, Zurich, Switzerland, January 12-16, 2009.

[85] Y. Zhang, J. Fan, A. R. Chada, and J. L. Drewniak, "A concise multiple scattering method for via array analysis in a circular plate pair," *EDAPS 2008 (Electrical Design of Advanced Packaging and Systems Symposium)*, Seoul, Korea, December 10-12, 2008.

[86] K. Ohmura, Y. Hayashi, H. Sone, and J. Fan, "Pulse response characteristic of connector contact failure on a coaxial cable," *IS-EMD2008 (8th International Session on Electro-Mechanical Devices)*, Sendai, Japan, November 15-16, 2008.

[87] S. Wu, X. Chang, C. Schuster, X. Gu, and J. Fan, "Eliminating via-plane coupling using ground vias for high-speed signal transitions," *17th Conference on Electrical Performance of Electronic Packaging*, San Jose, CA, October 27-29, 2008.

[88] Z. Yu, X. Dong, J. Mix, K. Slattery, and J. Fan, "Analysis of noise coupling from printed circuit board to shielding enclosure," *17th Conference on Electrical Performance of Electronic Packaging*, San Jose, CA, October 27-29, 2008.

[89] J. Fan, M. Cocchini, B. Archambeault, J. L. Knighten, J. L. Drewniak, and S. Conner, "Noise coupling between signal and power/ground nets due to signal vias transitioning through power/ground plane pair," *IEEE International Symposium on Electromagnetic Compatibility*, Detroit, MI, August 18-22, 2008.

[90] M. Cocchini, W. Cheng, J. Zhang, J. Fisher, J. Fan, J. Drewniak, and Y. Zhang, "Differential vias transition modeling in a multilayer printed circuit board," *IEEE International Symposium on Electromagnetic Compatibility*, Detroit, MI, August 18-22, 2008.

[91] M. Cocchini, J. Fan, B. Archambeault, J. Knighten, X. Chang, J. Drewniak, S. Connor, and Y. Zhang, "Noise coupling between power/ground nets due to differential vias transitions in a multilayer PCB," *IEEE International Symposium on Electromagnetic Compatibility*, Detroit, MI, August 18-22, 2008.

[92] F. De Paulis, J. Mix, X. Dong, D. Hua, K. Slattery, Y. Zhang, and J. Fan, "Closed-form expressions for determing approximate PMC boundaries around an aperture in a metal cavity wall," *IEEE International Symposium on Electromagnetic Compatibility*, Detroit, MI, August 18-22, 2008.

[93] L. Ren, Z. Yu, G. Feng, F. De Paulis, Y. Zhang, X. Dong, J. A. Mix, D. Hua, K. P. Slattery, and J. Fan, "Aperture modeling using a hybrid method for RFI analysis," *IEEE International Symposium on Electromagnetic Compatibility*, Detroit, MI, August 18-22, 2008.

[94] S. Mittal, F. De Paulis, Z. Yang, and J. Fan, "Using TWDP to quantify channel performance with frequency-domain S-parameter data," *IEEE International Symposium on Electromagnetic Compatibility*, Detroit, MI, August 18-22, 2008 (**Symposium Best Paper finalist**).

[95] F. De Paulis, J. Diepenbrock, B. Archambeault, S. Connor, A. Orlandi, and J. Fan, "Link path design on a block-by-block basis," *IEEE International Symposium on Electromagnetic Compatibility*, Detroit, MI, August 18-22, 2008.

[96] G. Feng, W. Wei, Y. Hayashi, T. Mine, J. Fan, and D. Pommerenke, "Time synchronized near-field and far-field for EMI source identification," *IEEE International Symposium on Electromagnetic Compatibility*, Detroit, MI, August 18-22, 2008.

[97] X. Chang, B. Archambeault, M. Cocchini, F. De Paulis, V. Sivarajan, Y. Zhang, J. Fan, S. Connor, A. Orlandi, and J. L. Drewniak, "Return via connections for extending signal link path bandwidth of via transitions," *EMC Europe 2008*, Hamburg, Germany, September 8-12, 2008.

[98] B. Archambeault, M. Cocchini, G. Selli, J. Fan, J. L. Knighten, S. Connor, A. Orlandi, and J. L. Drewniak, "Design methodology for PDN synthesis on multi-layer PCBs," *EMC Europe 2008*, Hamburg, Germany, September 8-12, 2008.

[99] Y. Zhang, X. Dong, Z. Yu, F. De Paulis, G. Feng, J. A. Mix, D. Hua, K. Slattery, and J. Fan, "Efficient prediction of RF interference in a shielding enclosure with PCBs using a general segmentation method," *EMC Europe 2008*, Hamburg, Germany, September 8-12, 2008.

[100] Y. Zhang, and J. Fan, "An analytical method to calculate via capacitance," *24th Progress In Electromagnetics Research Symposium 2008*, Cambridge, USA, July 2-6, 2008.

[101] Y. Zhang, F. De Paulis, and J. Fan, "Modeling multilayer power distribution network by systematically incorporating via and cavity models," *Asia-Pacific EMC Week*, Singapore, May 19-23, 2008.

[102] G. Feng, and J. Fan, "Experimental study on noise coupling among multiple power areas through edge coupling and via penetrations," *23rd Progress In Electromagnetics Research Symposium 2008*, Hangzhou, China, March 24-28, 2008.

[103] J. Fan, N. Smith, J. Knighten, J. Andresakis, Y. Fukawa, and M. Harvey, "Utilization of buried capacitance – a case study," *DesignCon 2008*, Santa Clara, CA, February 4-7, 2008.

[104] J. Chen, J.L. Drewniak, R. E. DuBroff, J. L. Knighten, J. Fan, J. Flavin , "Evaluation of the Shielding Characteristics of a Commercial 19-Inch Rack-Based Cabinet," *IMAPS 2006 - 40th International Symposium on Microelectronics*, San Jose, CA, November 2007.

[105] N. Smith, J. Fan, J. Andresakis, Y. Fukawa, M. Harvey, and J. Knighten, "Embedded Capacitor Technology: A Real World Example," *32nd International Electronics Manufacturing Technology Symposium (IEMT)*, San Jose, CA, October 3-5, 2007.

[106] G. Selli, M. Cocchini, J.L. Knighten, B. Archambeault, J. Fan, S. R. Connor, A. Orlandi, and J.L. Drewniak, "Early Time Charge Replenishment of the Power Delivery Network in Multi-Layer Printed Circuit Boards," *2007 IEEE International Symposium on Electromagnetic Compatibility*, Honolulu, HI, July 2007.

[107] J. Chen, J.L. Drewniak, R. E. DuBroff, J. L. Knighten, J. Fan, and J. Flavin, "Predictive Modeling of the Effects of Skew and Imbalance on Radiated EMI from Cables," *2007 IEEE International Symposium on Electromagnetic Compatibility*, Honolulu, HI, July 2007.

[108] J. L. Drewniak, B. Archambeault, J. L. Knighten, G. Selli, J. Fan, M. Cocchini, S. R. Connor, and L. Xue, "Comparing time-domain and frequency domain techniques for investigation on charge delivery and power-bus noise for high-speed printed circuit boards," *DesignCon 2007*, Santa Clara, CA, January 29-February 1, 2007. **DesignCon Paper Award.**

[109] G. Selli, L. Xue, J. L. Drewniak, B. Archambeault, J. Fan, S. R. Connor, and J. L. Knighten, "Power delivery effectiveness of individual power planes in a multiple power plane pair configuration printed circuit board," *IMAPS 2006 - 39th International Symposium on Microelectronics*, San Diego, CA, October 2006.

[110] S. Deng, T. H. Hubing, J. L. Drewniak, J. Fan, J. L. Knighten, and N. W. Smith, "Application of transmission line models to backpanel plated through-hole via design," *The 14th Topical Meeting on Electrical Performance of Electronic Packaging*, Austin, TX, October 24-26, 2005.

[111] G. Selli, J. L. Drewniak, R. E. DuBroff, J. Fan, J. L. Knighten, N. W. Smith, D. McCoy, B. Archambeault, S. Grivet-Talocia, and F. Canavero, "Complex power distribution network investigation using SPICE based extraction from first principle formulations," *The 14th Topical Meeting on Electrical Performance of Electronic Packaging*, Austin, TX, October 24-26, 2005.

[112] G. Selli, J. L. Drewniak, R. E. DuBroff, J. Fan, J. L. Knighten, N. W. Smith, D. McCoy, and B. Archambeault, "Power integrity investigation of BGA footprints by means of the segmentation method," *The IEEE International Symposium on Electromagnetic Compatibility*, Chicago, IL, August 8-12, 2005.

[113] J. Fan, J. L. Knighten, N. W. Smith, and R. Alexander, "Effects on crosstalk from a single-ended trace by referencing a non-ground reference plane," *The IEEE International Symposium on Electromagnetic Compatibility*, Silicon Valley, CA, August 9-13, 2004.

[114] S. Luan, J. Fan, J. L. Knighten, N. W. Smith, and R. Alexander, "The design of a lumped element impedance-matching network with reduced parasitic effects obtained from numerical modeling," *The IEEE International Symposium on Electromagnetic Compatibility*, Silicon Valley, CA, August 9-13, 2004.

[115] S. Luan, G. Selli, J. L. Drewniak, A. D. Luca, G. Antonini, A. C. Scogna, A. Orlandi, J. Fan, J. L. Knighten, N. W. Smith, and R. Alexander, "Extraction of a SPICE via model from full-wave

modeling for differential signaling," *The IEEE International Symposium on Electromagnetic Compatibility*, Silicon Valley, CA, August 9-13, 2004.

[116] S. Deng, J. Mao, T. H. Hubing, J. L. Drewniak, J. Fan, J. L. Knighten, N. W. Smith, R. Alexander, and C. Wang, "Effects of open stubs associated with plated through-hole vias in backpanel designs," *The IEEE International Symposium on Electromagnetic Compatibility*, Silicon Valley, CA, August 9-13, 2004.

[117] J. L. Knighten, R. D. McLay, P. M. Rostek, and J. Fan, "Cabinet shielding inherent in standard equipment racks not designed to provide high-performance shielding," *The IEEE International Symposium on Electromagnetic Compatibility*, Silicon Valley, CA, August 9-13, 2004.

[118] G. Selli, M. Lai, S. Luan, J. L. Drewniak, R. E. DuBroff, J. Fan, J. L. Knighten, N. W. Smith, G. Antonini, A. Orlandi, B. Archambeault, and S. Connor, "Validation of equivalent circuits extracted from S-parameter data for eye-pattern evaluation," *The IEEE International Symposium on Electromagnetic Compatibility*, Silicon Valley, CA, August 9-13, 2004.

[119] L. Zhang, B. Archambeault, S. Conner, J. L. Knighten, J. Fan, N. W. Smith, R. Alexander, R. E. DuBroff, and J. L. Drewniak, "A time domain approach to estimate current draw from SMT decoupling capacitors," *The IEEE International Symposium on Electromagnetic Compatibility*, Silicon Valley, CA, August 9-13, 2004.

[120] L. Zhang, B. Archambeault, S. Conner, J. L. Knighten, J. Fan, N. W. Smith, R. Alexander, R. E. DuBroff, and J. L. Drewniak, "A circuit approach to model narrow slot structures in a power bus," *The IEEE International Symposium on Electromagnetic Compatibility*, Silicon Valley, CA, August 9-13, 2004.

[121] G. Selli, J. Zhang, M. Lai, A. De Luca, A. Ciccomancini, B. Archambeault, G. Antonini, J. L. Drewniak, A. Orlandi, J. Fan, and J. L. Knighten, "3D modeling and circuit model extraction of vias in multilayer printed circuit boards," *The Progress in Electromagnetics Research Symposium (PIERS) 2004*, Pisa, Italy, March 28-31, 2004.

[122] G. Selli, A. De Luca, S. Luan, G. Antonini, J. L. Drewniak, J. L. Knighten, J. Fan, and A. Orlandi, "Extracting a SPICE compatible equivalent circuit from measured S-parameter data," *The 2004 International Symposium on Electromagnetic Compatibility*, Sendai, Japan, June 1-4, 2004.

[123] J. Fan, J. L. Knighten, N. W. Smith, and R. Alexander, ``The effects of reference capacitors on signal transmission through single-ended traces in multi-layer PCBs," *The IEEE International Symposium on Electromagnetic Compatibility*, Boston, MA, August 18-22, 2003.

[124] S. Luan, G. Selli, J. Fan, M. Lai, J. L. Knighten, N. W. Smith, R. Alexander, G. Antonini, A. Ciccomancini, A. Orlandi, and J. L. Drewniak, ``SPICE model libraries for via transitions," *The IEEE International Symposium on Electromagnetic Compatibility*, Boston, MA, August 18-22, 2003.

[125] S. Luan, F. Xiao, W. Liu, J. Fan, Y. Kami, J. L. Drewniak, and R. E. DuBroff, ``Modeling noise coupling from non-parallel PCB trace routing," *The IEEE International Symposium on Electromagnetic Compatibility*, Minneapolis, MN, August 19-23, 2002.

[126] C. Wang, J. L. Drewniak, J. Fan, J. L. Knighten, N. W. Smith, and R. Alexander, ``Transmission line modeling of vias in differential transmission lines," *The IEEE International Symposium on Electromagnetic Compatibility*, Minneapolis, MN, August 19-23, 2002.

[127] J. Fan, J. L. Knighten, N. W. Smith, R. Alexander, and D. Dressler, ``The effects of signal layer positions in multi-layer PCB designs," *The IEEE International Symposium on Electromagnetic Compatibility*, Minneapolis, MN, August 19-23, 2002.

[128] S. Luan, J. Fan, W. Cui, J. L. Drewniak, J. L. Knighten, T. P. VanDoren, ``Evaluating the effectiveness of SMT decoupling capacitors placed in proximity to IC power/ground pin connections for mitigating high-frequency power bus noise," *The 2002 Progress in Electromagnetics Research Symposium*, Cambridge, MA, July 1 - 5, 2002.

[129] S. Luan, J. Fan, W. Liu, F. Xiao, J. L. Knighten, N. W. Smith, R. Alexander, J. Nadolny, Y. Kami, and J. L. Drewniak, ``Extracting CAD models for quantifying noise coupling between vias in PCB layouts," *The 52nd Electronic Components and Technology Conference*, San Diego, CA, May 28-31, 2002.

[130] Chen Wang, James L. Drewniak, Min Li, Jun Fan, James L. Knighten, Norman W. Smith, Ray Alexander, and Jingyu Huang, "FDTD Modeling of Skin Effect," *The 3rd International Symposium on EMC*, Beijing, China, May 21-24, 2002.

[131] C. Wang, J. Fan, J. L. Knighten, N. W. Smith, R. Alexander, and J. L. Drewniak, ``The effects of via transitions on differential signals", *The 10th Topical Meeting on Electrical Performance of Electronic Packaging*, Cambridge, MA, October 29-31, 2001.

[132] W. Cui, J. Fan, S. Luan, and J. L. Drewniak, ``Modeling shared-via decoupling in a multi-layer structure using the CEMPIE approach", *The 10th Topical Meeting on Electrical Performance of Electronic Packaging*, Cambridge, MA, October 29-31, 2001.

[133] J. Fan, J. Neely, J. L. Knighten, and N. W. Smith, ``Evaluation of SMT decoupling design in functioning high-speed PCB," *The IEEE International Symposium on Electromagnetic Compatibility*, Montreal, Canada, August 13-17, 2001.

[134] J. Fan, S. Luan, and J. L. Drewniak, ``Including SMT ferrite beads in DC power bus high-speed I/O line modeling," *The IEEE International Symposium on Electromagnetic Compatibility*, Montreal, Canada, August 13-17, 2001.

[135] W. Cui, J. Fan, H. Shi, and J. L. Drewniak, ``DC power bus noise isolation with power islands," *The IEEE International Symposium on Electromagnetic Compatibility*, Montreal, Canada, August 13-17, 2001.

[136] J. L. Knighten, N. W. Smith, J. T. DiBene II, L. O. Hoeft, and J. Fan, ``Common-mode current harmonics on differential pair cable shields operating in a regime as high as 2.125 Gb/s" *The IEEE International Symposium on Electromagnetic Compatibility*, Montreal, Canada, August 13-17, 2001.

[137] J. Fan, J. L. Drewniak, J. L. Knighten, N. W. Smith, and A. Orlandi, ``Calculation of self and mutual inductances associated with vias in a DC power bus structure from a circuit extraction approach based on a mixed-potential integral equation formulation," *The 14th International Zurich Symposium & Exhibition on Electromagnetic Compatibility*, Zurich, Switzerland, February 20-22, 2001.

[138] V. Adamian, J. Knighten, N. Smith, B. Cole, P. Phillips, R. Alexander, and J. Fan, ``Characterization of printed circuit board transmission lines at data rates above 1 GB/s using time domain characteristics derived from frequency domain measurements," *The 14th International Zurich Symposium & Exhibition on Electromagnetic Compatibility*, Zurich, Switzerland, February 20-22, 2001.

[139] J. Fan**,** J. L. Drewniak, J. L. Knighten, and N. W. Smith, ``Modeling DC power bus with a circuit extraction approach based on a mixed-potential integral equation formulation," *The 2001 National Radio Science Meeting*, Boulder, Colorado, January 8-11, 2001.

[140] J. Fan**,** J. L. Drewniak, and J. L. Knighten, ``DC power bus modeling using a circuit extraction approach based on a mixed-potential integral equation formulation and an iterative equation solver," *The 9th Topical Meeting on Electrical Performance of Electronic Packaging*, Scottsdale, Arizona, October 23-25, 2000.

[141] X. Ye, J. Fan, M. Koledintseva, and J. L. Drewniak, ``DC power bus design with FDTD modeling including a dispersive media," *The 9th Topical Meeting on Electrical Performance of Electronic Packaging*, Scottsdale, Arizona, October 23-25, 2000.

[142] J. Fan, H. Shi, J. L. Knighten, and J. L. Drewniak, ``Modeling and design of DC power buses on multi-layer PCBs including dielectric losses," *The 4th European Symposium on Electromagnetic Compatibility*, Brugge, Belgium, September 11-15, 2000.

[143] J. Fan, J. L. Knighten, A. Orlandi, N. W. Smith, and J. L. Drewniak, ``Quantifying decoupling capacitor location," *IEEE International Symposium On Electromagnetic Compatibility*, Washington, DC, August 21-25, 2000.

[144] J. Fan, H. Shi, J. L. Knighten, and J. L. Drewniak, ``DC power bus modeling in high-speed digital designs including conductor and dielectric losses," *The Second Asia-Pacific Conference on Environmental Electromagnetics*, Shanghai, P.R.China, May 3-7, 2000.

[145] J. Fan, H. Shi, J. L. Knighten, and J. L. Drewniak, `` An MPIE-based circuit extraction technique and its applications on power bus modeling in high-speed digital designs," *The 16th Annual Review of Progress in Applied Computational Electromagnetics*, Monterey, California, March 20 - 25, 2000. **Conference Best Paper Award.**

[146] T. H. Hubing, J. Chen, J. L. Drewniak, T. P. Van Doren, Y. Ren, J. Fan, and R. E. DuBroff, "Power bus noise reduction using power islands in printed circuit board designs," *Proceedings of*

the 1999 International Symposium on Electromagnetic Compatibility, Tokyo, Japan, May 1999, pp. 1-4.

[147] J. Fan, Y. Ren, J. Chen, D. M. Hockanson, H. Shi, J. L. Drewniak, T. H. Hubing, T. P. Van Doren, and R. E. DuBroff, "RF isolation using power islands in DC power bus design," *IEEE International Symposium on Electromagnetic Compatibility*, Seattle, August 1999.

[148] J. Fan, H. Shi, J. L. Drewniak, T. H. Hubing, R. E. DuBroff, and T. P. Van Doren, "Incorporating vertical discontinuities in power bus modeling using a mixed-potential integral equation and circuit extraction formulation", *7th Topical Meeting on Electrical Performance of Electronic Packaging*, October 1998.

[149] H. Shi, J. Fan, J. L. Drewniak, T. H. Hubing, and T. P. Van Doren, "Modeling multilayered PCB power-bus designs using an MPIE based circuit extraction techniques," *IEEE International Symposium on Electromagnetic Compatibility*, Denver, August 1998, pp. 647-651.