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Gary B. Johnson, Ph.D.
Senior Managing Scientist

Professional Profile

Dr. Gary Johnson is a Senior Managing Scientist in Exponent's Electrical Engineering and Computer Science practice. He specializes in electrically related issues particularly as they relate to the electrical environment of power systems. Dr. Johnson has extensive experience with the electric and magnetic fields of transmission and distribution systems as well as the audible noise, radio noise, and ozone that may be produced by high voltage power systems. His work has involved the measurement, modeling, and mitigation of the electrical environment of transmission lines, transformer vaults, and underground cables. His power system experience includes issues dealing with lightning, electrical transients, ground currents, and stray voltage.

Dr. Johnson has testified on the corona and field effects of DC and AC transmission lines and been a lecturer at the EPRI Transmission Line Design Seminars. He has given numerous presentations and led several workshops on power line design and the electrical environment. He was a principal investigator in the EPRI research on magnetic field sources and methods of shielding.

Dr. Johnson has performed engineering studies related to power system fields, audible noise, radio noise, induced currents, and ground currents for clients including state and federal agencies, utilities, and site developers. Other areas of expertise include investigations of electrically-related fires in devices ranging from consumer appliances to industrial equipment, electrical injury, electrical faults, electronic component failure, code compliance, and facility wiring systems. Prior to joining Exponent, Dr. Johnson was the President of Power Research Engineering, where he worked on engineering issues related to the electrical environment and power quality.

Academic Credentials and Professional Honors

Ph.D., Electrical Engineering, University of Illinois, 1979
M.S., Physics, University of Illinois, 1976
B.S., Engineering Physics, University of Illinois (Highest Honors), 1974

Tau Beta Pi; Phi Kappa Phi

Publications and Presentations

Martens J, Johnson GB, So P. Design considerations for consumer products utilizing high voltage. Presentation and Conference Proceedings, IEEE Symposium on Product Safety & Compliance Engineering, IEEE Product Safety Engineering Society, Irvine, CA, October 23–24, 2006.

Johnson GB, Bracken TD, Bailey W. Charging and transport of aerosols near AC transmission lines: A literature review. EPRI Report 1008148, Palo Alto, CA, December 2003.

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Johnson GB. Magnetic field sources in nonresidential settings. Proceedings, EPRI Science and Communication Seminar, San Jose, CA, October 1991.

Johnson GB. Magnetic field management: Residential low-voltage grounding. Proceedings, EPRI Science and Communication Seminar, San Jose, CA, October 1991.

Rauch GB, Johnson GB, Johnson P, Stamm A, Tomita S, Swanson J. A comparison of international grounding practices and associated magnetic fields. Proceedings, IEEE T&D Conference, Dallas, TX, September 1991, and IEEE Transaction on Power Delivery 1992; 7:934–939.

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Workshops/Seminars

Bailey WH, Bracken TD, Johnson GB. Method for measuring charge on aerosol particles near AC transmission lines. Joint Meeting of the Biolectromagnetics Society and the European BioElectromagnetics Association, Dublin, Ireland, June 2005.

Johnson GB. Proposed IEEE standard – 1556: Public impacts. Panel Session: Electric and Magnetic Field Exposure Standards for the Public and Workers: 0 – 3 kHz, IEEE Power Engineering Society Summer Meeting, Vancouver, Canada, 2001.

Johnson GB. Power system magnetic fields. GPU Workshop, EPRI Power Delivery Center-Lenox, MA 1997.

Johnson GB, Kavet R, Sastre A. Residential magnetic field transients. Effect of residential services on fields arising from distribution line capacitor bank switching. Bioelectromagnetics Symposium, P-130A, Salt Lake City, UT, June 1995.

Johnson GB. Measurement of residential magnetic fields. Yankee Conference, Massachusetts Environmental Health Association, Westborough, MA, 1995.

Johnson GB. Residential sources and exposure. EMF Health Research: State of the Science, Harvard School of Public Health, Boston, MA, 1995.

Johnson GB. Power system magnetic field management seminar. HVTRC, Lenox, MA, 1994.

Johnson GB. EMF in substations. IEEE Workshop, Los Angeles, CA, May 1994.

Johnson GB. Proceedings, Substation Magnetic Field Workshop. EPRI Workshop, Palo Alto, CA, EPRI Report on RP 2942-41, TR 101852, April 1993.

Johnson GB. Distribution magnetic field management workshop. HVTRC, Lenox, MA, 1992; Washington DC, 1993.

Johnson GB. End use magnetic field R&D workshop. EPRI Workshop, Raleigh, NC, 1992.

Johnson GB, Frazier M, Dunlap J. EPRI Electrical Potpourri Seminar, Palo Alto, CA, 1990; Haslet, TX, 1991.

Johnson GB. Magnetic field considerations: Low voltage grounding. EPRI Workshop, Colorado Springs, CO, 1991.

Johnson GB. Power system magnetic field measurement workshop. HVTRC, Lenox, MA, 1988 to 1995.

Johnson GB, Zaffanella L, Comber M, Nigbor R, Clairmont B, Anzivino L, Slocik J. EPRI High Voltage Transmission Line Design Seminar, HVTRC, Lenox, MA, 1982 to 1992.

Professional Affiliations

- Institute of Electrical and Electronic Engineers
- American Association for the Advancement of Science
- American Physical Society
- BioElectroMagnetics Society