



**Exponent®**  
Engineering & Scientific Consulting

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## Professional Profile

Dr. Pinnangudi specializes in the field of electrical engineering with emphasis on electrical power systems. His doctoral thesis at Arizona State University was based on life prediction and estimating remaining life of nonceramic/polymer high voltage insulators.

Dr. Pinnangudi also has broad expertise in analog and digital electronic systems, computer systems, programmable controllers and software systems. Dr. Pinnangudi is a certified six-sigma black belt (a quality assurance and control certification).

At Exponent, Dr. Pinnangudi performs design review, failure analysis, life prediction, reliability assessment, safety evaluation, and condition monitoring as related to electrical and electronic systems and components; particularly in the field of power storage and conversion including power electronics, energy storage systems, battery charging and management systems (laptops, cable modems, e-book readers, medical devices), power supplies, and UPS systems.

Additionally, Dr. Pinnangudi offers regulatory compliance testing and consulting services. He was an integral part of the CTIA initiative at Exponent to verify the conformance of cellular products (and other products with Li-ion batteries that operated on wireless networks) to latest revision of the IEEE 1725, standard for rechargeable batteries for cellular telephones. He conducts testing and detailed review of supporting evidence from cellular product manufacturers for compliance. He was also involved with the CTIA IEEE 1625 initiative.

Dr. Pinnangudi also consults on electrical power systems and degradation mechanisms associated with insulators in high voltage systems.

Prior to Exponent, Dr. Pinnangudi was working as a senior consultant at Global Energy Advisors, Sacramento. His job responsibilities included energy forecasts, modeling and assessing regional power/fuel markets, advanced quantitative/qualitative analysis of energy market fundamentals, and serving as an advisor for clients to develop solutions for power business problems.

## Academic Credentials & Professional Honors

Ph.D., Electrical Engineering, Arizona State University, 2007

M.S., Electrical Engineering, Arizona State University, 2003

## Licenses and Certifications

Professional Engineer, Arizona, #54771

Six Sigma Black Belt Certification (CSSBB)

## Prior Experience

Senior Consultant, Global Energy Advisors, 2007

Six-Sigma Black Belt Intern, ON Semiconductors, 2006-2007

Graduate Teaching Associate, Dept of Electrical Engg, Arizona State University, 2004-2007

Graduate Research Assistant, Dept of Electrical Engg, Arizona State University, 2001-2003

## Professional Affiliations

Institute of Electrical and Electronics Engineers—IEEE (member)

## Languages

Tamil

## Publications

Arora A, Harris J, Pinnangudi B. . Lithium ion batteries for stationary applications: A safety perspective. International stationary battery conference, May 16-18, 2011.

Arora A, Medora N, Pinnangudi B. Accessible hot surfaces and burn hazards. IEEE Symposium on Product Compliance Engineering, October 18-20, 2010.

Pinnangudi B, Dalal S, Medora N, Arora A, Swart J. Thermal shutdown characteristics of insulating materials used in lithium ion batteries. IEEE Symposium on Product Compliance Engineering, October 18-20, 2010.

Swart J, Dalal S, Pinnangudi B, Medora N, Arora A. Lithium ion battery standards. 10th Annual International Advanced Automotive Battery Conference and Symposia, May 17-21, 2010.

Medora N, Swart J, Arora A, Dalal S, Pinnangudi B. Electric arcs—A unique phenomenon. 10th Annual International Advanced Automotive Battery Conference and Symposia, May 17-21, 2010.

Dalal S, Swart J, Pinnangudi B. IEEE 1725 and battery powered products. IEEE Symposium on Product Compliance Engineering, pp. 1-8, October 26-28, 2009.

Arora A, Medora N, Pinnangudi B, Livernois T. Evaluation of resistive faults in high current starter cables. IEEE Symposium on Product Compliance Engineering, pp. 1-8, October 26-28, 2009.

Arora A, Medora N, Swart J, Pinnangudi B. Arc faults in hybrid and high voltage automotive systems. 9th International Advanced Automotive Battery and EC Capacitor Conference (AABC) and Symposia, June 8-12, 2009.

Pinnangudi BN, Gorur RS, Poweleit CD. Degradation dynamics of polymeric housing materials used for HV line and station apparatus. IEEE Transactions on Dielectrics and Electrical Insulation 2007; 14(5):1215-1223, October.

Pinnangudi BN, Gorur RS, Poweleit CD. Damage threshold of polymeric housing materials used for HV outdoor insulators. IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 405-408, October 15-18, 2006.

Pinnangudi BN, Gorur RS, Govinda Raju GR. Arc endurance modeling of polymeric HV outdoor insulating materials. IEEE Conference on Electrical Insulation and Dielectric Phenomena, October 14-17, 2007.

Pinnangudi BN, Gorur RS, Poweleit CD. Quantification of degradation in nonceramic insulator housing materials by laser irradiation. IEEE Transactions on Dielectrics and Electrical Insulation 2006; 13(2):423-429, April.

Pinnangudi BN, Gorur RS, Poweleit CD. Characterization of field-aged nonceramic insulator. IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 22-25, October 16-19 2005.

Pinnangudi BN, Gorur RS, Kroese AJ. Quantification of corona discharges on nonceramic insulators. IEEE Transactions on Dielectrics and Electrical Insulation 2005; 12(3):513-523, June.

Pinnangudi BN, Gorur RS, Kroese AJ. Energy quantification of corona discharges on nonceramic insulators. IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 315-318, October 20-24 2002.

## **Presentations**

Pinnangudi B, Dalal S, Medora N, Arora A, Swart J. Thermal shutdown characteristics of insulating materials used in lithium ion batteries. IEEE Symposium on Product Compliance Engineering, October 18-20, 2010.

Pinnangudi BN, Gorur RS, Poweleit CD. Characterization of field-aged nonceramic insulator. IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 22-25, October 16-19 2005.