DR. RAVI S. GORUR
Professor

Contact Details

School of Electrical and Computer Engineering
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Education

1986 Ph.D EE, University of Windsor, Ontario, Canada
1983 MS EE, Indian Institute of Science, India
1981 BS EE, Bangalore University, India

Teaching and Research Interests

Teaching: Electrical engineering fundamentals, power engineering, power electronics and high voltage (HV) engineering.

Research: Nanomaterials, smart grid technologies for condition monitoring, evaluation, assessment and failure prediction of power system apparatus, electric field calculations, high frequency effects, HV testing techniques and computer aided design.

Academic Experience

Aug. 2015-Present	Professor and Chair, Department of Electrical and Computer Engineering, University of Alabama in Huntsville, Huntsville, Alabama
Sept. 1987-Aug. 2015	Arizona State University, Tempe, Arizona
May 2013-May 2014	Deputy Assistant Secretary, Power Systems Engineering Research & Development, Office of Electricity Delivery & Energy Reliability, US Department of Energy, Washington DC (on assignment, Intergovernment Personnel Act-IPA Agreement)
2010-2013	Program Chair of Electrical Engineering
2004-2010	Arizona State University, Associate Chair & Director of Undergraduate Studies
1996-2015	Arizona State University, Professor
1991-1995	Arizona State University, Associate Professor
1987-1991	Arizona State University, Assistant Professor
2002	Visiting Professor, Queensland University of Technology, Australia (on sabbatical leave)
1995	Visiting Professor, National University of Singapore, Singapore (on sabbatical leave)

Industry Experience (Consulting)

Nevada Power, Nevada
Midsun, Connecticut
Smart Wires, California
CVLO LLC, Chicago
Michel & Fackler, California
Powergrid, India
Hubbell Power Systems, Connecticut
Electranet, Australia
Energy Australia
WS Insulators, India
Deccan Enterprises, India
Goldstone Industries, India
IFOS, San Jose, California
URS Corporation, Seattle, Washington
Pacific Gas and Electric Company, California
San Diego Gas and Electric, San Diego, California
Seves, Italy
Baker and Daniel, Indianapolis
Wynn and Wynn, Massachusetts
Dominion Electric, Virginia
Saudi Electric Company, Saudi Arabia
ABB, North Carolina
ATCO, Alberta, Canada
SaskPower, Saskatchewan, Canada
City of Peoria, Arizona
Burch & Cracchiolo, Arizona
S and C Electric, Illinois
Altalink, Alberta, Canada
The Amalgamated Sugar Company (TASCO), Idaho
Portland General Electric, Oregon
Oklahoma Gas and Electric, Oklahoma
Southern California Edision, California
XCEL Energy, Minnesota
Medtronic, Minnesota
Williams Consulting Inc., Florida
Trane Inc., Colorado
Ofil, Israel
Sediver, France
PREPA, Puerto Rico
US-Navy SPAWAR, San Diego
Hendrix Wire and Cable
Shell Corporation, Texas
Newmont Mining (Indonesia)
Wacker Chemicals Corporation, Michigan

Belize Electricity Limited, Belize
Electrocomposites Inc., Canada
Electroporcelana Gamma, Columbia
Tait SA, Argentina
Epoxiformas, Argentina
Entergy, Louisiana
Korean Electric Power Company (KEPCO), Korea
Washington Group International Inc., New Jersey
ABB, Tennessee
Tyco Electronics, North Carolina
W. B. Goldsworthy and Associates, California
BTI Consultants, Arizona
Butler Capital Partners, France
Needle Gallagher & Ellenberg, P.A, California
Interlink Corporation, Japan
Walker and Associates, Texas
Northern States Power, Minnesota
Shakopee Public Utilities, Minnesota
Saudi Projacs, Riyadh, Saudi Arabia
GE Plastics, New York
Herzfeld and Rubin, Florida
Dow Corning Corporation, Michigan.
Zelle and Larson, L. L. P. Texas
BC Hydro, Vancouver, Canada
Arizona Public Service Company, Arizona
U-Haul International Inc., Arizona
Struckmeyer and Wilson, Phoenix, Arizona
United Nations Program Development, India
Instituto de Investigaciones Electricas, Cuernavaca, Mexico
Borma, S.p.A, Italy
Raychem Corporation, California
Consumers Power Company, Michigan
Scarborough Electric Commission, Ontario, Canada
Exodyne Electric Motors, Inc., Arizona
Elastimold, New Jersey
University Consulting Group, Arizona
Condumex, Mexico
Lindsey Manufacturing Co., California
Curtis Superior Valve Co., Arizona

Professional Awards and Recognition

2011	Claude de Tourreil Memorial Award for Lifetime Achievement in the Field of Electrical Insulators
2011	Outstanding technical contributor, IEEE Conference on Electrical Insulation and Dielectric Phenomena

2004-Present US Representative of CIGRE Study Committee D1- Emerging technologies and materials

1998 **IEEE Fellow** (for contributions to the understanding of aging of polymeric materials for HV insulation)

1998-2011: Author of editorial segment *"Ravi's Column"* in **"Insulator News and Market Report",** a leading international magazine on the business and technology of insulators, Quarterly issue

PUBLICATIONS

Text Book

R. S. Gorur, E. A. Cherney and J. T. Burnham, "**Outdoor Insulators**", ISBN 0-967611-0-7, 1999.

IEEE Standards

2. As Chair, "IEEE Guide for the Application, Maintenance, and Evaluation of Room Temperature Vulcanized (RTV) Silicone Rubber Coatings for Outdoor Ceramic Insulators", IEEE Std, 1523-2002.
1. As Member, "IEEE Guide for Application of Composite Insulators", IEEE Std 987, 2002.

Invited Papers

9. *"Failure mechanisms of porcelain, toughened glass and composite insulators",* World Congress on Insulators, Arresters and Bushings, Seoul, Korea, April 2011.
8. *"Condition monitoring methods for outdoor insulators",* World Congress on Insulators, Arresters and Bushings, Seoul, Korea, April 2011.
7. *"Condition monitoring of composite, porcelain and glass insulators",* Conference on International Best Practices in O & M of EHV transmission system", pp. 56-89, New Delhi, India, March 2010.
6. *"A balanced approach to insulator selection and specifications",* World Congress on Insulators, Arresters and Bushings", Crete, Greece, May 2009.
5. *"Technological developments with composite insulators and their impact on users",* Inaugural paper at the International Symposium on Insulators, Bushings and Arresters, pp. 1-10, Hong Kong, 2005.
4. *"Accomplishments and future challenges for outdoor insulating systems under contaminated conditions",* Key Note paper at the International Symposium on High Voltage Engineering, Bangalore, India. pp. 66-75, 2001.
3. *"Where is insulator technology today: what's been accomplished, what's still missing?",* Opening paper at the World Insulator Congress and Exhibition, Spain, pp. 10-25, 2001.
2. *"Worldwide service experience with composite insulators: Lessons Learnt",* Inaugural paper at the 2000 World Congress on Insulators, Shanghai, China, pp 1-10, 1999.
1. *"Experience with and performance of different materials for weathersheds",* Inaugural paper at the International Symposium on Modern Insulator Technologies, Singapore, pp. 1-8, 1997.

Journal Papers (Graduate student names are in italics)

93. *J. He* and R. S. Gorur, "*Flashover of insulators in a wet environment", IEEE Transactions on Dielectrics and Electrical Insulation",* Vol. 24, No. 2, pp. 1038-1044, 2017.
92. *L. Cui*, R. S. Gorur and D. Chipman, *"Evaluating flashover performance of insulators under fire fighting conditions"*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 24, No. 2, pp 1051-1056, 2017.
91. *L. He* and R. S. Gorur, *"Source strength impact analysis on polymer insulator flashover under contaminated conditions and a comparison with porcelain"*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 23, No. 4, pp. 2189-2195, 2016.
90. *L. He* and R. S. Gorur, *"Source strength impact analysis on insulator flashover under contaminated conditions",* IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 23, No. 2, pp. 1005-1011, 2016.
89. *J. He* and R. S. Gorur, *"A probabilistic model for insulator flashover under contaminated conditions"*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 23, No. 1, pp. 555-561, 2016.
88. E. A. Cherney, R. S. Gorur, et al, *"Evaluation of and replacement strategies for aged high-voltage toughened glass insulators"*, IEEE Transactions on Power Delivery, Vol. 30, No. 3, pp. 1145-1152, 2015.
87. E. A. Cherney, R. S. Gorur, et al, "DC inclined plane tracking and erosion test of insulating *materials"*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 22, No. 1, pp. 211-217, 2015.
86. *G. Iyer*, R. S. Gorur and A. Krivda, "*Understanding electrical discharge endurance of epoxy micro- and nano-composites through thermal analysis",* IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 21, No. 1, pp. 225-229, 2014.
85. E. A. Cherney, R. S. Gorur, et al, "End-of-life and replacement strategies for RTV silicone rubber coatings", IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 21, No. 1, pp 253-261, 2014.
84. *J. He* and R. S. Gorur, "Charge simulation based electric field analysis of composite insulators for HVDC lines", IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 21, No. 6, pp. 2541-2548, 2014.
83. E. A. Cherney, R. S. Gorur, et al, "RTV silicone rubber pre-coated ceramic insulators for transmission lines", Vol. 20, No. 1, pp, 237-244, 2013.
82. *G. Iyer*, R. S. Gorur and A. Krivda, "*Corona resistance of epoxy nanocomposites: experimental results and modeling*", IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 19, No. 1, pp. 118-125, 2012.
81. A. Krivda, R. S. Gorur, et al, *"Characterization of epoxy microcomposite and nanocomposite materials for power engineering applications",* IEEE Electrical Insulation Magazine, Vol. 28, No. 2, pp.38-51, 2012.
80. *L. Bo* and R. S. Gorur, *"Modeling flashover of AC outdoor insulators under contaminated conditions with dry band arcing",* IEEE Transactions on Dielectrics and Electrical Insulation", Vol. 19, pp 1037-1043, 2012.
79. A. C. Baker, R. S. Gorur, et al, *"High voltage insulators mechanical load limits – Part 1: Overhead line load and strength requirements",* IEEE Transactions on Power Delivery, Vol. 27, pp. 1106-1123, 2012.
78. A. C. Baker, R. S. Gorur, et al, *"High voltage insulators mechanical load limits – Part 2: Standards and Recommendations",* IEEE Transactions on Power Delivery, Vol. 27, pp. 2342-2349, 2012.

77. *T. Doshi*, R. S. Gorur and J. Hunt, "*Electrical field calculations of composite insulators up to 1200 kV ac*", IEEE Transactions on Dielectrics and Electrical Insulation", Vol. 18, pp. 861-867, 2011.
76. *G. Iyer*, R. S. Gorur, R. Rickert and A. Krivda*, "Performance of epoxy nanocomposites for HV insulation"*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 18, pp, 659-666. 2011.
75. *D. Rodriguez*, R. S. Gorur and P. Hansen, *"Prediction of breakdown of air for VLF/LF",* European Journal of Electric Power, Paper Number 117, 2011.
74. *D. Rodriguez,* R. S. Gorur and P. Hansen, *"Effect of Humidity on the Breakdown Characteristics of Air in Non-Uniform Field for the Very Low Frequency (VLF) Band",* IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 17, No. 1, pp. 77-85, 2010.
73. *G. Iyer*, R. S. Gorur, A. Krivda and P. Mahonnen, *"Prediction of electrical performance of medium voltage epoxy insulated equipment"*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 17, pp. 334-342, 2010.
72. *J. Han*, R. S. Gorur and P. Hansen, *"Breakdown characteristics of SF6 for VLF/LF",* European Journal of Electric Power, Paper Number, 111, 2010.
71. *A. Rawat* and R. S. Gorur, *"Microstructure Based Evaluation of Field Aged and New Porcelain Suspension Insulators",* IEEE Transaction on Dielectrics and Electrical Insulation, Vol. 16, No. 1, pp. 64-72, 2009.
70. *D. Rodriguez*, R. S. Gorur and P. Hansen, *"Effect of Humidity on the Breakdown Characteristics of Air in Uniform Field for the Very Low Frequency (VLF) Band"*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 16, No. 5, pp, 1397-1403, 2009.
69. *A. Mishra*, R. S. Gorur and *S. Venkataraman*, *"Evaluation of Porcelain and Toughened Glass Insulators Removed from Service"*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 15, pp. 467-475, 2008.
68. *L. Lan* and R. S. Gorur, *"Computation of ac Wet Flashover Voltage of Ceramic and Composite Insulators"*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 15, pp. 1346-1352, 2008.
67. *K. Shenoi* and R. S. Gorur, *"Evaluating Station Post Insulator Performance from Electric Field Calculations",* IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 15, pp. 1731-1738, 2008.
66. *B. Pinnangudi*, R. S. Gorur and C. D. Powaleit, *"Degradation Dynamics of Polymeric Housing Materials used for HV Line and Apparatus"*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 14, pp. 1215-1223, 2007.
65. M. Farzaneh, R. S. Gorur, et al, *"Selection of Line Insulators with respect to Ice and Snow-Part 1: Context and Stresses"*, IEEE Transactions on Power Delivery, Vol. 22, pp. 2289-2296, 2007.
64. M. Farzaneh, R. S. Gorur, et al, *"Selection of Line Insulators with respect to Ice and Snow-Part II: Selection Methods and Mitigation Options"*, IEEE Transactions on Power Delivery, Vol. 22, pp. 2297-2304, 2007.
63. *S. Venkataraman* and R. S. Gorur, *"Extending the Applicability of Insulator Flashover Models by Regression Analysis",* IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 14, pp. 368-374, 2007.
62. *B. Pinnangudi*, R. S. Gorur and C. Poweleit, *"Quantification of Degradation in Nonceramic Insulator Housing Materials by Laser Ablation",* IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 13, pp. 423-429, 2006.

61. *S. Venkataraman* and R. S. Gorur, *"Prediction of Flashover Voltage of Nonceramic Insulators Under Contaminated Conditions"*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 13, pp. 862-869, 2006.
60. *"Emerging Nanocomposite Dielectrics",* Task Force Report of D1.16.03, Electra, No. 226, pp. 24-32, 2006.
59. M. Farzaneh, R. S. Gorur et al*, "Selection of Station Insulators with respect to Ice and Snow: Part 1: Technical Context and Environmental Exposure"*, IEEE Transactions on Power Delivery, Vol. 20, pp. 264-270, 2005.
58. M. Farzaneh, R. S. Gorur et al*, "Selection of Station Insulators with respect to Ice and Snow: Part 2: Methods of Selection and Options for Mitigation"*, IEEE Transactions on Power Delivery, Vol. 20, pp. 271-277, 2005.
57. *S. Dalal*, R. S. Gorur and M. L. Dyer*, "Aging of Distribution Cables in Service and its Simulation in the Laboratory",* IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 12, pp. 139-146, 2005.
56. *S. Venkataraman*, R. S. Gorur, R. Bass and C. Rhodes, *"Tracking Resistance of Polymeric Insulating Materials under High Pressure Conditions"*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol.12, pp. 595-600, 2005.
55. *B. Pinnangudi*, R. S. Gorur and A. J. Kroese, *"Quantification of Corona on Nonceramic Insulators"*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol.12, pp. 595-600, 2005.
54. J. Kindersberger, R. S. Gorur, et al, *"Material Properties for Non-Ceramic Outdoor Insulators"*, Working Group D1.14 Report, ELECTRA, No. 217, pp. 29-35, 2004.
53. R. Sundarajan, R. S. Gorur, et al (Committee Chair), *"Preventive Measures To Reduce Bird Related Power Outages. Part I-Electrocution and Collision"*, Task Force Report, IEEE Trans. Power Delivery, Vol. 19, pp. 1843-1847, 2004.
52. R. Sundarajan, R. S. Gorur, et al (Committee Chair), "*Preventive Measures to Reduce Bird Related Power Outages: Part II - Streamers and Contamination*", Task Force Report, IEEE Trans. Power Delivery, Vol.19, pp. 1848-1853, 2004.
51. *V. Moreno*, R. S. Gorur and A. Kroese, *"Impact of Corona on the Long-term Performance of Nonceramic Insulators"*, IEEE Transactions on Dielectrics and Electrical Insulation", IEEE Trans. Dielectrics and Electrical Insulation, Vol.10, No. 1, pp. 80-95, 2003.
50. D. Kingsbury, B. Mobasher, *J. Montesinos* and R. S. Gorur, *"Mechanical Aspects of Crimped Glass Reinforced Epoxy Rods"*, IEEE Trans. Power Delivery, Vol. 18, No. 3, pp. 852-858, 2003.
49. K. A. Nigim, *S. Suryanarayanan*, R. S. Gorur and R. G. Farmer, "*The application of analytical hierarchy process to analyze the impact of hidden failures in special protection schemes",* Electric Power Systems Research, Vol. 67, No. 3, pp. 191-196, 2003.
48. R. S. Gorur, *J. Montesinos*, R. Roberson, J. Burnham and R. Hill, *"Mold Growth on Nonceramic Insulators and its Impact on Electrical Performance"*, IEEE Trans. Power Delivery, Vol. 18, No. 2, pp. 559-563, 2003.
47. J. Kindersberger, R. S. Gorur, et al*, "Development of a Test Technique to Assess Leakage Current Suppression Capability of Polymers",* Working Group Report, ELECTRA, No. 153, 2002.
46. *J. Montesinos*, R. S. Gorur, B. Mobasher and D. Kingsbury, *"Brittle Fracture in Nonceramic Insulators: Electrical Aspects of Discharges in Voids inside the FRP Rod",* IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 9, No. 2, pp. 244-252, 2002.

45. J. T. Burnham, R. S. Gorur, et al (Task Force Vice-chair),: *"Brittle Fracture in Nonceramic Insulators",* Task Force Report, IEEE Transactions on Power Delivery, Vol.17, No.3, pp. 848-856, July 2002.
44. *J. Montesinos*, R. S. Gorur, B. Mobasher and D. Kingsbury, *"Mechanisms of Brittle Fracture in Nonceramic Insulators"*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 9, No 2, pp. 236-243, 2002.
43. R. S. Gorur et al (Committee Chair), *"Surface Resistance Measurement of Non-Ceramic Insulators"*, Task Force Report, IEEE Trans. Power Delivery, IEEE Trans. Power Delivery, Vol. 16, No. 4, pp. 801-805, Oct. 2001.
42. *V. M. Moreno* and R. S. Gorur, *"Effect of Long-term Corona on Non-Ceramic Outdoor Insulator Housing Materials"*, IEEE Trans. Dielectrics and Electrical Insulation, Vol. 8, No. 1, pp. 117-128, 2001.
41. *J. Montesinos*, R. S. Gorur, L. Zimmer and N. F. Hubele, *"Statistical Models for Failure Modes of Polymeric Materials for HV Outdoor Insulation"*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 7, No. 3, pp. 408-415, June 2000.
40. R. S. Gorur and *J. Montesinos*, *"Electrical Performance of Epoxy Insulators"*, IEEE Trans. Power Delivery, Vol. 15, No. 4, pp. 1274-1279, 2000.
39. *J. Montesinos*, R. S. Gorur and J. Burnham, *"Estimation of Flashover Probability of Aged Nonceramic Insulators in Service",* IEEE Trans. Power Delivery, Vol. 15, No. 2, pp. 820-826, 2000.
38. *V. Moreno* and R. S. Gorur*, "AC and DC Performance of Polymeric High Voltage Insulating Materials"*, IEEE Trans. Dielectrics and Electrical Insulation, Vol. 6, No. 3, pp. 342-350, 1999.
37. R. S. Gorur and B. S. Bernstein, *"Field and Laboratory Aging of Polymeric Cable Terminations: Part 1: Field Aging",* IEEE Transactions on Power Delivery, Vol.13, No. 2, pp. 316-323, 1998.
36. R. S. Gorur and B. S. Bernstein*, "Field and Laboratory Aging of Polymeric Cable Terminations: Part 2: Laboratory Aging",* IEEE Transactions on Power Delivery, Vol. 13, No. 2, pp. 323-330, 1998.
35. R. S. Gorur and *A. de La O*, *"Flashover Characteristics of Nonceramic Insulators in a Wet Atmosphere"*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol.5, No. 6, pp 914-923, 1998.
34. R. S. Gorur, *"Status Assessment of Composite Insulators for Outdoor HV Systems"*, Korean Institute of Electrical and Electronic Material Engineers, Vol. 11, No. 10, pp. 1-6, 1998.
33. R. S. Gorur, *A. De La O, H. El-Kishky, M. Chowdhary, H. Mukherjee, R. Sundaram* and J. T. Burnham, "*Sudden Flashover of Artificially Contaminated Nonceramic Insulators in Laboratory Tests*", IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 4, No. 1, pp. 79-87, 1997.
32. R. S. Gorur, *J. Montesinos, L. Varadadesikan*, S. Simmons and M. Shah*, "A Laboratory Test for Tracking and Erosion Resistance of HV Outdoor Insulation",* IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 4, No. 6, pp. 767-774, 1997.
31. R. S. Gorur, et al (Committee Chair), "*Round Robin Test Results on RTV Coatings*", Position Paper from the Outdoor Service Environment Committee S-32-3, IEEE Transactions on Power Delivery, Vol. 11, No. 4, pp. 1881-1887, 1996.

30. *R. Sundararajan* and R. S. Gorur, "*Role of Nonsoluble Contaminants on the Flashover Voltage of Porcelain Insulators*", IEEE Transactions on Dielectrics and Electrical Insulation, Vol, 3, No. 1, pp. 113-118, 1996.
29. R. S. Gorur, *J. Mishra*, R. Tay and R. McAfee, "*Electrical Performance of RTV Silicone Rubber Coatings*", IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 3, No. 2, pp. 299-306, 1996.
28. *H. El-Kishky* and R. S. Gorur, "*Electric Field Computation on an Insulating Surface with Discrete Water Droplets*", IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 3, No. 3, pp. 450-456, 1996.
27. *H. El-Kishky* and R. S. Gorur, "*Electric Field and Energy Computation on Wet Insulating Surfaces*", IEEE transactions on Dielectrics and Electrical Insulation, Vol. 3, No. 4, pp. 587-593, 1996.
26. *A. De La O*, R. S. Gorur and J. T. Burnham, "*Electrical Performance of Nonceramic Insulators in Artificial Contamination Tests: Role of Resting Time*", IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 3, No. 6, pp. 827-835, 1996.
25. *R. Sundararajan*, *N.R. Sadhureddy* and R. S. Gorur, "*Computer aided design of high voltage porcelain insulators under polluted conditions*", IEEE Transactions on Dielectrics and Electrical Insulation", Vol. 2, No. 1, 1995.
24. R. S. Gorur, et al (Committee Chair), "*Protective coatings for improving contamination performance of outdoor high voltage ceramic insulators*", Position Paper from the Outdoor Service Environment Committee S-32-3, IEEE Transactions on Power Delivery, Vol. 10, No. 2, pp. 924-933, 1995.
23. *R. Sundararajan* and R. S. Gorur, "*Effect of insulator profiles on DC flashover voltage under polluted conditions: A study using a dynamic arc model*", IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 1, No. 1, pp 124-132, 1994.
22. R.S. Gorur, T. Orbeck, T. Champion, H. Hervig, and B.S. Bernstein, "*Evaluation of polymeric materials for HV outdoor insulation*", CIGRE Paper 15-107, 1994.
21. *A. De La O*, R. S. Gorur and *J. Chang*, "*AC clean fog tests on non-ceramic insulating materials and a comparison with porcelain*", IEEE Transactions on Power Delivery, Vol. 9, No. 4, pp. 2000-2008, 1994.
20. *H. El-Kishky* and R. S. Gorur, "*Electric potential and field computation along AC high voltage insulators*", IEEE Transactions on Dielectrics and Electrical Insulation", Vol. 1, No. 6, pp. 982-990, 1994.
19. *J. Chang* and R. S. Gorur, "*Surface recovery of silicone Rubbers used for outdoor insulation*", IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 1, No. 6, pp. 1039-1046, 1994.
18. J. F. Hall, R.S. Gorur and S. Gryzbowski, "*History and bibliography of polymeric insulators for outdoor applications*", IEEE Transactions on Power Delivery, Vol. 8, pp. 375-385, 1993.
17. H.M. Schneider, W.W. Guidi, J. Burnham, R. S. Gorur and J. Hall, "*Accelerated aging and flashover tests on 138 kV non ceramic line post insulators*", IEEE Transactions on Power Delivery, Vol. 8, pp. 325-336, 1993.
16. *R. Sundararajan* and R. S. Gorur, "*Dynamic arc modeling of pollution flashover of insulators with DC voltage*", IEEE Transactions on Electrical Insulation, Vol. 28, No. 2, pp. 209-218, 1993.

15. R.S. Gorur, G.G. Karady, A. *Jagota, M. Shah* and A.M. Yates, "*Aging of silicone rubber for outdoor insulation*", IEEE Transactions on Power Delivery, Vol. 7, No. 2, pp. 525 538, Apr. 1992.
14. R.S. Gorur, G.G. Karady, *A. Jagota, M. Shah* and B. Furumasu, "*Comparison of RTV silicone rubber coatings under artificial contamination in a fog chamber*", IEEE Transactions on Power Delivery, Vol. 7, No. 2, pp. 713-719, 1992.
13. *V. Chaudhry*, R. S. Gorur, M. Dyer and R.S. Thallam, "*Electrical performance of polymer housed surge arrestors under contaminated conditions*", IEEE Transactions on Power Delivery, Vol. 6, No. 2, pp. 696-705, 1991.
12. R.S. Gorur, L.A. Johnson and H. Hervig, "*Contamination performance of silicone rubber cable terminations*", IEEE Transactions on Power Delivery, Vol. 6, No. 4, pp. 1366- 1373, 1991.
11. R.S. Gorur, E.A. Cherney and R. Hackam, "*Electrical performance of organic insulating materials as affected by environmental degrading factors*", International Journal on Energy Systems, Vol. 11, No. 3, pp. 122- 125, 1991.
10. R.S. Gorur and T. Orbeck, "*Surface dielectric behavior of under HV outdoor conditions*", IEEE Transactions on Electrical Insulation, Vol. 26, pp. 1064-1072, 1991.
9. R.S. Gorur, E.A. Cherney and R. Hackam, "*Polymer insulator profiles evaluated in a fog chamber*", IEEE Transactions on Power Delivery, Vol. 5, pp. 1078-1085, 1990.
8. R.S. Gorur, E.A. Cherney and R. Hackam, "*Electrical performance of polymeric insulators in salt-fog*", International Journal of Energy Systems, Vol. 10, No. 3, pp. 136 139, 1990.
7. R.S. Gorur, *J. Chang* and O.G. Amburgey, "*Surface hydrophobicity of polymeric materials used for outdoor insulation applications*", IEEE Transactions on Power Delivery, Vol. 5, No. 4, pp. 1923-1933, 1990.
6. R.S. Gorur, E.A. Cherney and R. Hackam, *"Performance of polymeric cable terminators in salt-fog*", IEEE Transactions on Power Delivery, Vol. 4, No. 2, pp. 842-849, 1989.
5. R.S. Gorur, *S. Sundhara Rajan* and O.G. Amburgey, "*Contamination performance of polymeric materials for outdoor insulation applications*", IEEE Transactions on Electrical Insulation, Vol. 24, pp. 713-716, 1989.
4. R.S. Gorur, E.A. Chemey, R. Hackam and T. Orbeck, "*The electrical performance of polymeric insulating materials under accelerated aging in a fog chamber*", IEEE Transactions on Power Delivery, Vol. 3, No. 3, pp. 1157-1164, 1988.
3. R.S. Gorur, E.A. Cherney and R. Hackam, "*The ac and dc performance of polymeric insulating materials under accelerated aging in a fog chamber*", IEEE Transactions on Power Delivery, Vol. 3, No. 4, pp. 1892-1902, 1988.
2. R.S. Gorur, E.A. Cherney and R. Hackam, "*Performance of polymeric insulating materials in salt-fog*", IEEE Transactions on Power Delivery, Vol. 2, No. 2, pp. 486-492, 1987.
1. R.S. Gorur, E.A. Cherney and R. Hackam, "*A comparative study of polymer insulating materials under salt-fog conditions*", IEEE Transaction on Electrical Insulation, Vol. EI-21, No. 2, pp. 175-182, 1986.

Conference Papers (Graduate student names are in italics)

63. *L. Cui* and R. S. Gorur, "A statistical model for predicting flashover of outdoor insulators", IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 837-840, Oct. 2016.

62. *G. Iyer*, R. S. Gorur and A. Krivda, "*Evaluation of epoxy nanocomposites for high voltage insulation*", IEEE Conference on Electrical Insulation and Dielectric Phenomena, 2012.
61. R. S. Gorur, *"Failure modes of porcelain and toughened glass suspension insulators",* IEEE Electrical Insulation Conference, pp. 221-225, 2011.
60. *L. Bo* and R. S. Gorur, *"Theoretical model for predicting flashover voltage of contaminated insulators"*, IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. x-x, 2011.
59. *G. Iyer*, R. S. Gorur, R. Richert, A. Krivda and L. E. Schmidt*, "Dielectric properties of epoxy based nanocomposites for high voltage insulation",* IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 659-666, 2011.
58. K. Tsakalis, S. Phillips and R. S. Gorur, *"On the implementation of ABET feedback for program improvement"*, American Society for Engineering Education's Annual Conference and Exposition, 2011.
57. *G. Iyer*, R. S. Gorur, R. Richert, A. Krivda and L. E. Schmidt, *"Evaluation of epoxy based nanodielectrics for outdoor insulation"*, IEEE International Symposium on Electrical Insulation, 2010.
56. *D. Rodriguez*, R. S. Gorur and P. M. Hansen, *"Very low frequency (VLF) breakdown of air in non-uniform fields for varying humidity conditions"*, IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 621-624, 2009.
55. *G. Iyer,* R. S. Gorur, A. Krivda and P. Mahonen, *"Statistical modeling for predicting degradation of medium voltage outdoor equipment",* IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 274-277, 2009.
54. *A. Rawat* and R. S. Gorur, *"Electrical strength reduction of porcelain suspension insulators on ac transmission lines"*, IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 245-248, 2008.
53. *D. Rodriguez*, R. S. Gorur and P. M. Hansen, "Combined effects of humidity and frequency on the dielectric strength of air for VLF applications", IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 611-614, 2008.
52. *B. Pinnangudi*, R. S. Gorur and G. R. G. Raju, *"Arc endurance modeling of polymeric HV outdoor insulating materials"*, Proceedings of IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 338-341, 2007.
51. *A. P. Mishra* and R. S. Gorur*, "Investigation of electrical failures in porcelain cap and pin line insulators"*, Proceedings of IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 95-98, 2007.
50. *S. Venkataraman*, R. S. Gorur and *K. Shenoi, "Contamination initiated flashover of insulators in generating stations"*, Proceedings of IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 811-814, 2007.
49. *D. Rodriguez*, G. Gopinathan, R. S. Gorur and P. Hansen, *"Effect of VLF/LF frequency and humidity on the breakdown of air"*, Proceedings of IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 691-694, 2007.
48. *B. N. Pinnangudi*, R. S. Gorur and C. D. Poweleit*, "Damage threshold of polymeric housing materials used for outdoor HV insulators"*, Proceedings of the IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 405-408, 2006.
47. *S. Venkataraman* and R. S. Gorur*, "A novel method for prediction of flashover of in-service EPDM insulators"*, Proceedings of the IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 385-388, 2006.

46. *A. P. Mishra, S. Venkataraman* and R. S. Gorur, *"Condition assessment of porcelain and toughened glass insulators from residual strength tests"*, Proceedings of the IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 413-416, 2006
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44. *S. Venkataraman* and R. S. Gorur, *"Nonlinear regression analysis for predicting flashover performance of composite insulators under contaminated conditions",* North American Power Symposium, pp. 1-4, 2006.
43. *S. Venkataraman* and R. S. Gorur, *"Flashover voltage prediction of outdoor insulators subjected to road salt contamination",* Proceedings of the IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 293-296, Oct. 2005.
42. *B. N. Pinnangudi*, R. S. Gorur and C. D. Poweleit*, "Characterization of field-aged nonceramic insulators"*, Proceedings of the IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp 22-25, Oct. 2005.
41. *S. Monga*, R. S. Gorur and W. Massey, *"Electric field calculations by boundary element method for a 230 kV composite bushing",* Proceedings of the IEEE International Symposium on Antennas and Propagation Society, Vol. 3A, pp. 338-341, July 2005.
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39. *S. Dalal*, R. S. Gorur and M. L. Dyer, *"A New Method for Estimating Remaining Life of XLPE Insulated Cables"*, IEEE Conference on Electrical Insulation and Dielectric Phenomena, Annual Report, pp. 55-58, 2004.
38. *S. B. Dalal*, R. S. Gorur and M. L. Dyer, *"State estimation of insulation for 15 kV cross linked polyethylene distribution cables"*, International Conference of Probabilistic Methods Applied to Power Systems, pp. 1009-1013, 2004.
37. *S. B. Dalal*, R. S. Gorur and M. L. Dyer*, "Quantifying degradation of XLPE insulated distribution cables"*, IEEE Power Engineering Society General Meeting, pp. 1841-1845, 2004.
36. *S. Dalal*, R. S. Gorur and M. L. Dyer, *"New aging model for 15 kV XLPE distribution cables"*, IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 41-44, 2004.
35. R. S. Gorur and *J. Moreno, "Performance of Nonceramic Insulators in Severely Contaminated Coastal Locations"*, International Symposium on High Voltage Engineering, Delft, pp. 1-4, 2003.
34. *S. Venkataraman*, R. S. Gorur, R. Bass and C. Rhodes, *"Arc tracking resistance of polymeric materials in oxygen deficient conditions"*, IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 104-107, 2003.
33. R. S. Gorur and *K. Subramanian, "Use of surface resistance for assessing vulnerability of HV outdoor insulators to contamination flashover"*, IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 406-409, 2003.
32. *S. Venkataraman* and R. S. Gorur, ***"****Prediction of polymer insulating material degradation using Daubechies wavelet transformation",* IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp 323-326, 2002.

31. *S. Sivasubramaniyam* and R. S. Gorur, *"Computation of defect-induced electric fields on outdoor high voltage ceramic and non-ceramic insulators",* IEEE Conference on Electrical Insulation and Dielectric Phenomena, Annual Report, pp. 319 –322, 2002.
30. *B. N. Pinnangudi*, R. S. Gorur and A. J. Kroese, *"Energy quantification of corona discharges on polymer insulators",* IEEE Conference on Electrical Insulation and Dielectric Phenomena, Annual Report, pp. 315-318, 2002.
29. R. S. Gorur, *S. B. Dalal* and M. L. Dyer, *"Prediction of future performance of in-service XLPE cables"*, pp. 421-424, 2002.
28. *V. M. Moreno* and R. S. Gorur, *"Corona-induced degradation of nonceramic insulator housing materials",* IEEE Conference on Electrical Insulation and Dielectric Phenomena, Annual Report, pp. 640-643, 2001.
27. *J. Montesinos* and R. S. Gorur, *"An investigation on the water induced brittle fracture of nonceramic insulators",* IEEE Conference on Electrical Insulation and Dielectric Phenomena, Volume: 1, pp. 365-368, 2000.
26. *J. Montesinos*, R. S. Gorur and B. Mobasher, *"Mechanical performance of GRP rods used in nonceramic insulators after exposure to acid attack",* International Symposium on High Voltage Engineering, Vol. 4, pp. 1-4, 1999.
25. *V. M. Moreno* and R. S. Gorur, *"Accelerated corona discharge performance of polymer compounds used in high voltage outdoor insulators",* IEEE Conference on Electrical Insulation and Dielectric Phenomena, Annual Report, Vol. 2 pp 731-734, 1999
24. R. S. Gorur, *J. Montesinos*, R. Roberson, J. Burnham and R. Hill, *"Mold growth on nonceramic insulators and its impact on electrical performance",* IEEE Transmission and Distribution Conference, Vol.: 2 , pp. 818-822, 1999.
23. *J. Montesinos*, R. S. Gorur, J. Goudie , *"Electrical performance of RTV silicone rubber coatings after exposure to an acidic environment",* IEEE Conference on Electrical Insulation and Dielectric Phenomena, 1998. Annual Report, Vol. 1, pp. 39-42, 1998.
22. R. S. Gorur and M. Bajpai, *"Insulator contamination monitoring and performance in a nuclear power generating station",* IEEE Conference on Properties and Applications of Dielectric Materials, Vol. 2, pp. 25 –30, 1997.
21. R. Gorur, *J. Montesinos, L. Varadadesikan*, S. Simmons and M. Shah, "A rapid test method for evaluating the tracking and erosion resistance of polymeric outdoor insulating materials", IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 402-405, 1997.
20. R. S. Gorur, *"Status assessment of composite insulators for outdoor HV applications",* IEEE Conference on Properties and Applications of Dielectric Materials, Vol. 1, pp. 25-30, 1997.
19. R. S. Gorur, *A. de la O*, W. D. Shead, *"Evaluation of naturally aged non-ceramic insulators",* IEEE Conference on Electrical Insulation and Dielectric Phenomena, Vol. 1, pp. 20-23, 1996.
18. R. Matsuoka, H. Shinokubo, K. Kondo and R. S. Gorur, *"Investigation of field energized RTV coated porcelain insulators",* International Symposium on Electrical Insulating Materials, pp. 185-188, 1995.
17. *R. Sundararajan* and R. S. Gorur, *"Influence of inert materials on the pollution flashover voltage of porcelain insulators",* IEEE Conference of Electrical Insulation and Dielectric Phenomena, pp. 651-655, 1994.
16. *J. W. Chang* and R. S. Gorur, *"Hydrophobicity of silicone rubber used for outdoor insulation",* International Conference on the Properties and Applications of Dielectric Materials, Vol. 1, pp. 266-269, 1994.

15. *R. Sundararajan* and R. S. Gorur, *"Pollution performance of DC station post insulators using a dynamic model",* IEEE Conference on Electrical Insulation and Dielectric Phenomena, Annual Report, pp. 592-597, 1993.
14. *A. de la O*, R. S. Gorur and J. Chang, *"Effect of wetting conditions on the flashover voltage of non-ceramic insulators"*, IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 508-513, 1993.
13. *R. Sundararajan* and R. S. Gorur, *"Influence of profiles on DC insulator performance under polluted conditions"***,** IEEE Conference on Electrical Insulation and Dielectric Phenomena, Annual Report, pp. 850-855, 1992.
12. *J. W. Chang* and R. S. Gorur, *"The role of backbone chain rotation in the hydrophobicity recovery of polymeric materials for outdoor insulation",* IEEE Conference on Conduction and Breakdown in Solid Dielectrics, pp. 270-274, 1992.
11. *M. R. Tirupattur* and R. S. Gorur, *"Characterization of aging in polymeric insulation by thermally stimulated depolarization current measurements";* IEEE Internation Symposium on Electrical Insulation, pp. 153-156, 1992.
10. R. S. Gorur, D. W. Gerlach and R. S. Thallam, *"Aging In Outdoor Insulating Polymers Due To UV and High Temperature",* IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 268-273, 1991.
9. *R. Sundararajan* and R. S. Gorur, *"Dynamic modeling of flashover on dielectric surfaces",* IEEE Conference on Properties and Applications of Dielectric Materials, pp. 949-952, 1991.
8. R. S. Gorur, H. Hervig and L. A, Johnson, *"Contamination performance of silicone rubber cable terminations. II"*, IEEE Transmission and Distribution Conference, pp. 238-242, 1991.
7. R. S. Gorur, G. G. Karady*, A. Jagota, M. Shah* and B. C. Furumasu, *"Comparison of RTV silicone rubber coatings under artificial contamination in a fog chamber",* IEEE Transmission and Distribution Conference, pp. 876-882, 1991.
6. *M. L. Miller,* R. S. Gorur, L. E. Hendrickson and M. L. Dyer, *"Water treeing characterization and tree retardant compound effects in XLPE power cables"***,** IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 404-409, 1990.
5. *R. Sundararajan* and R. S. Gorur, *"Dynamic arc modeling of DC flashover under contaminated conditions",* IEEE Conference on Electrical Insulation and Dielectric Phenomena, Annual Report, pp. 557-562, 1990.
4. R. S. Gorur, L. A. Johnson and H. C. Hervig, *"Accelerated aging of silicone rubber cable terminations",* IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 155-160, 1989.
3. R. S. Gorur, E. A. Cherney and R. Hackam, *"Electrical performance of organic insulating materials as affected by environmental degrading factors",* IEEE International Symposium on Electrical Insulation, pp. 294-297, 1986.
2. R. S. Gorur, E. A. Cherney and R. Hackam, *"Factors affecting the performance of polymeric insulating materials in contaminated conditions",* IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 339-334, 1986.
1. R. S. Gorur, E. A. Cherney and R. Hackam, *"Electrical performance of polymeric insulating materials: Effect of material and filler type",* IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 350-355, 1985.

Articles in Trade Journals and Magazines:

18. "Six utilities share their perspectives on Insulators", Transmission and Distribution World, pp. 56-64, April 2010.
17. "Utilities Share Experiences with Polymer, Glass and Porcelain Insulators", Transmission and Distribution World, April 2005.
16. "Birds Collide with Power Lines", Transmission and Distribution World, Dec. 2005.
15. "Insulators for cold urban areas: The problem of Road Salt", Insulator News and World Report, Quarterly Report 2, 2005.
14. "Predicting Flashover Voltage of Ceramic Insulator: Successes and Limitations", Insulator News and World Report, Quarterly Report 1, 2005.
13. "Interfaces in Composite Insulators", Insulator News and World Report, Quarterly Report 4, 2004.
12. "Prediction of Polymer Insulating Material Degradation Using Wavelet Transformation", Insulator News and World Report, Quarterly Report 3, 2004.
11. "Aging of Porcelain Insulators", Insulator News and World Report, Quarterly Report 2, 2004.
10. "Use of Corona Cameras for Inspecting Composite Insulators", Insulator News and World Report, Quarterly Report 1, 2004.
9. "Mold Growth on Composite Insulators: Is this a Real Problem or a Cosmetic Issue", Insulator News and World Report, Sept. 2003.
8. "Overcoming Contamination Related Insulator Problems in a Coastal Environment", Insulator News and Market Report, May 2003.
7. "Corona vs. Discharge Initiated Degradation of Composite Insulators", Insulator News and Market Report, July 2002.
6. "Brittle Fracture of Composite Insulators: Do we know enough to Distinguish Hype from Reality", Insulator News and Market Report, March 2002.
5. "Solid Polymer Coatings for Ceramic Insulators", Insulator News and World Report, Dec. 2001.
4. "Accelerated Aging Test Development for Composite Polymer Insulators: Challenges and a Possible Approach", Insulator News and World Report, July 2001.
3. "Epoxy Formulations for Outdoor Insulators", Insulator News and World Report, Jan. 2001.
2. "Hydrophobicity", Insulator News and World Report", July 2000.
1. "The Importance of Good Nonceramic Insulator Design and Selection", Insulator News and World Report, Jan. 2000.

STUDENTS GRADUATED

With Ph. D Degree: 13

J. He, 2016
L. He, 2016
G. Iyer, 2012
D. Rodriguez, 2010
S. Venkataraman, 2007
B. Pinnangudi, 2007
S. Dalal, 2004
J. Montesinos, 2002
V. Moreno, 2001

A. de La O, 1998
H. El-Kishky, 1996
R. Sundararajan, 1995
J. W. Chang, 1991

With MS Degree: 50
2016
Z. Chan
2013
Koustubh Bannerjee, L. Cui, Jiahong He
2012
L. Bo, X. Deng, S.K.L. Jain, N. Mohan
2010
J. Han, T. Doshi, P. Sangaraju
2009
G. Iyer, S. Shinde
2008
K. Shenoi, A. Rawat
2007
A. Mishra, G. Gopinathan
2006
A. Hundiwale
2005
S. Monga
2004
K. Subramanian, S. Koutam
2003
B. Pinnangudi, S. Venkataraman, S. Sivasubramanian
2001
M. Al-Hajri, S. Suryanarayanan, S. Dalal
2000
R. Sundaram,
1999
D. Busot,
1998
L. Varadadesikan
1997
M. Tirrupattur, R. Sadhureddy, J. Montesinos
1996
M. Chowdhary, S. Revannur, H. Mukherjee
1995
J. Mishra, M. Miller, A. Das, A. Subbaiah
1994
R. Sadhureddy, A. de la O, U. Rani
1993
S. Lakshinarsasimha

1992
S. Kotha, J. S. Mulammotttil
1991
A. Jagota
1990
V. Chaudry, J. W. Chang
1989
S. Sundararajan

RESEARCH PROJECTS

My share of the research funding is about $ 5.5 million, or an average of $ 250,000 per year.

The following two projects are multi-university, multi-investigator projects

Western Electricity Coordinating Council (WECC), 2010-2013
Electric Power System for 2020 and beyond
EPRI-DOD, California, 1998-2001
Catastrophic failure prevention studies in large power systems.

The following are projects as principal investigator.

Integrated Fiber Optics Systems, California (2011-2013). Subcontract from DOE.
Comparison of partial discharge sensing methods
Power Systems Engineering Research Center (PSERC), 2001-2015
Evaluation of the role of interfaces in nonceramic insulators, condition assessment of cables
A simple diagnostic tool for assessing contamination severity
Condition assessment of underground cables
High temperature composite conductors for transmission lines
Evaluation of RTV (room temperature vulcanized) silicone rubber coatings for station post insulators
Evaluation of micro and nanobased dielectrics
Making economic sense of high temperature low sag (HTLS) conductors
Salt River Project, Arizona, 1987-2015
SRP has been sponsoring a research project of about $ 50,000 every year since 1987 on the topic on insulation related to outdoor insulators and underground cables, and most recently composite conductors.
US Navy-SPAWAR, 2005-2010
Evaluation of breakdown mechanisms at VLF
3M Corporation, Minnesota, 2004
Comparative evaluation of composite conductor technologies
Cooper Power Systems, New York, 2004
Evaluation of surge arresters for distribution.
Consortium of Insulator Manufacturers, 2003
Evaluation of 500 kV nonceramic insulators at the PG and E power station in Moss Landing, CA.
San Diego Gas and Electric, California, 2002-2003

Development of strategies for dealing with insulator contamination and aging problems
NGK-Locke Polymer Insulators, Virginia, 2002
Investigation of brittle fracture in fiberglass rods for composite insulators
Ciba Specialty Chemicals, Michigan, 1998-2000
Evaluation of epoxy materials and devices for HV outdoor applications
NSF, Washington D. C, 1987-2000
Development of high voltage insulation laboratory
Evaluation of Polymeric cable terminations
Reliability assessment of high voltage insulating devices via condition monitoring
Electric Power Research Institute, California, 1993-2000.
1. Field and laboratory aging studies on polymeric cable terminations
2. Evaluation of polymeric distribution insulators
3. Reliability evaluation of distribution insulators via limited aging tests
Florida Power and Light Company, Florida, 1995-2000.
1. Comparison of nonceramic insulators for 500 kV applications
2. Evaluation of mold on insulator performance
3. Brittle fracture mechanisms in nonceramic insulators
Cooper Power Systems, Wisconsin, 1998-99
Evaluation of epoxy insulated vacuum interrupters
Dow Corning Corporation, Michigan, 1996-99
Evaluation of RTV coatings for HV insulators
Evaluation of solid rubbers for HV outdoor applications
Sediver, France, 1993-96
Field and laboratory aging of distribution composite insulators
Raychem Corporation, California, 1993-96
New test methods for housing materials for HV outdoor applications
NGK Insulators, Japan, 1995
Evaluation of RTV coated porcelain insulators
Houston Lighting and Power, Texas, 1995
Evaluation of remaining life of 345 kV composite insulators
Arizona Public Service Company, Arizona, 1993-95
Contamination measurements of insulators in PVNGS plant.
JA Jones Power Delivery Center, Massachussets, 1994-95
Analysis of aging of covered conductors.
GE Company, Massachussets, 1992-94
1. Infrared analysis of housing materials on 138 kV nonceramic insulators
2. Analysis of housing materials on 500 kV nonceramic insulators
Wacker Silicones Corporation, Michigan, 1992-94
Evaluation of RTV coatings and rubbers for outdoor applications
Bonneville Power Administration, Oregon, 1991-93 (co-principal investigator)
Evaluation of RTV coatings for porcelain insulators
Georgia Power Company, Georgia, 1993
Establishment of insulator monitoring facility in Sea Island
Microchip Technology, Arizona, 1992
Power smart device evaluation
Pacific Scientific Company, California, 1991

Evaluation of starter motors for aerospace applications
Western Area Power Administration, Arizona, 1991
Contamination monitoring in the Henderson Substation.
3M Electrical Products Division, Texas, 1989-91
Aging of polymeric cable terminations in contaminated environments
McDonnell Douglas Corporation, Arizona, 1989-90
Evaluation of wire insulation for aerospace applications
Reliable Power Products, Illinois, 1988-90
1. Contamination performance evaluation of nonceramic insulators.
2. Evaluation of housing materials for nonceramic insulators.
Power-Rex Associates, Arizona, 1989
Evaluation of flat cables for aerospace applications

Leadership in International Professional Committees

1987-2000	IEEE Dielectric and Electrical Insulation Society's Outdoor Service Environment Committee, **Chair**.
1991-1997	IEEE Power Engineering Society's Insulated Conductors Committee Working Group on Polymer Cable Accessories, **Chair**.
1995-1999	Task Force on Surface Resistance Measurement, IEEE Working Group on Insulator Contamination, **Chair**.
1997-2001	Task Force on Brittle Fracture, IEEE Working Group on Insulator Strength Rating, **Vice-Chair.**
2000-2005	IEEE Working Group on Insulator Contamination, **Chair**.
2002-2004	Task Force Convenor, "Interfacial Effects in Composite Insulators", CIGRE Study Committee D1.14.10.
1998-2005	Overseas Editor, Korean Institute of Electrical Engineers
2006, 2007	Technical program committee Chair, IEEE Conference on Electrical Insulation and Dielectric Phenomena.

International Conferences Organized

2002	Symposium on Outdoor Insulators, Brisbane, Australia, **(Chief Organizer)**
2001	World Insulator Congress and Exhibition, Shanghai, China, **Director**
1999	Insulator 2000 World Congress, Barcelona, Spain, **Director**
1997	International Symposium on Nonceramic Insulation, Singapore, **Director**
1996	International Symposium on Modern Insulator Technologies, Coral Gables, **Director**
1995	Non-Ceramic Insulator Technology: The North American Experience, Symposium in Nov 16-17, 1995, Switzerland, **Director**

Short Courses Developed for Industry on Outdoor Insulators, Power Transmission and Distribution

The Ministry of Energy, Myanmar, 2011.
Utilities of Maharashtra, Gujarat and Andra Pradesh, India, 2011

Powergrid, India, 2010
SaskPower, Canada, 2007
CPD International, Australia, 2006, 2007, 2008, 2012
Ergon, Rockhampton, Australia, 2007
ElectraNet, Australia, 2008
Entergy, New Orleans, 2003
Puerto Rico Electrical Power Authority (PREPA), 2002
Arizona State University, **Annual Event** from 1995-2003
Consumer Power Company, Jackson, Michigan, 1992
CFE, Mexico, 1993
IIE, Mexico, 1993
Borma Insulators, Italy, 1994
Saudi Consolidated Electric Company (SCECO-EAST), Dammam, Saudi Arabia, 1996
Saudi Projacs, Riyadh, Saudi Arabia, 1999 and 2000
Northern States Power, Minnesota, 1999
Shakopee Public Utilities, Minnesota, 1999

Significant Service Activities

Member of Editorial Board
European Transactions on Electric Power (2008-present)
Korean Institute of Electrical and Electronic Engineers (2005-present)
Member of personnel committees in Department (1996-99 and 2010-present), college (2000-2002) and University (2006-2009)