

## EMC Society 50th Anniversary Awards Program

**Inaugural "Hall of Fame" Awards Presented to the Founders of the EMC Society**

Samuel J. Burruano  
Milton Kant  
Vincent J. Mancino  
James P. McNaul  
Ralph M. Showers  
Anthony Zimbalatti

**Recognition of the Most Referenced Transactions on EMC Papers: First 50 Years**

"Transient Response of Multiconductor Transmission Lines Excited by a Nonuniform Electromagnetic Field", Volume EMC-22, No. 2, May 1980, by A.K. Agrawal, H.J. Price, and S.H. Gurbaxani

"Absorbing Boundary Conditions for the Finite-Difference Approximation of the Time-Domain Electromagnetic Field Equations," Volume EMC-23, No. 4, November 1981, by G. Mur

"Generation of Standard Electromagnetic Fields Using TEM Transmission Cells," EMC-16, No. 4, November 1974, by M.L. Crawford

"Frequency Response of Multiconductor Transmission Lines Illuminated by an Electromagnetic Field," Volume EMC-18, No. 4, November 1976, by Clayton R. Paul

**Recognition of the Most Referenced Transactions on EMC Papers: Second 25 Years**

"Statistical Model for a Mode-Stirred Chamber," Volume 33, No. 4, November 1991, by B. Boverie and J.G. Kostas

"Correction of Maxwell's Equations for Signals I," Volume EMC-28, No. 4, November 1986, by H.F. Harmuth

"Aperture Excitation of Electrically Large, Lossy Cavities," Volume 36, No. 3, August 1994, by M.L. Crawford, D.A. Hill, R.T. Johnk, M.T. Ma, A.R. Ondrejka, and B.F. Riddle.

"Plane Wave Integral Representation for Fields in Reverberation Chambers," Volume 40, No. 3, August 1998, by D.A. Hill

**Special Recognition of Significant Contributors to the Ongoing Success of the EMC Society**

**Innovator of Education in the EMC Society**  
Clayton R. Paul

**Newsletter Editor for the EMC Society for Thirty Years: 1968-1997**  
Robert Goldblum

**Personality Profile Associate Editor for the EMC Society Newsletter for over Thirty Years: 1974 - present**  
William Duff

**Historical Contribution: Forty Years for Forty Bucks Compact Disk**  
Len Carlson

**50<sup>th</sup> (Golden) Anniversary Power Point Presentation**  
Jerry Ramie

**Secretary of the EMC Society for Twenty Years**  
Janet O'Neil

**Treasurer of the EMC Society for Twenty Years**  
Warren Kesselman

**EMC Society Standards: Twenty-five Years of Service**  
Don Heirman

**Recognition of the Recipients of the Richard B. Schulz Award for Best Transactions Paper Presented at the Annual IEEE International Symposium on EMC**

(NOTE – The "IEEE Transactions on EMC Best Paper Award" was renamed the "Richard B. Schulz Award for Best Transactions Paper" in 2006 to honor Richard B. Schulz, the editor of the IEEE Transactions on EMC for 18 years, from 1969 to 1987.)

2006 – Arai, Ken Ichi; Arakawa, Satoru; Ota, Hiroyasu; Sato, Risaburo; Suzuki, Eiji; "Optical Magnetic Field Probe Working Up to 15 GHz Using CdTe Electro-Optic Crystals;" May 2005; Pages 344 -351.

2005 – Pignani, S.A.; Spadacini, G.; "A Bulk Current Injection Test Conforming to Statistical Properties of Radiation-Induced Effects;" August 2004; Pages 446-458.

2004 – Fischer, K.; Flintoft, I.D.; Marvin, A.C.; Robinson, M.P.; Rowell, A. J.; "The Re-Emission Spectrum of Digital Hardware Subjected to EMI;" November 2003; Pages 576 – 585.

2003 – Hill, David A.; Holloway, Christopher L.; Wilson, Perry F.; "On Determining the Maximum Emissions from Electrically Large Sources;" February 2002; Pages 79-86.

2002 – Fichtner, W.; Schuster, C.; "Parasitic Modes on Printed Circuit Boards and Their Effects on EMC and Signal Integrity;" November 2001; Pages 416-425.

2001 – D'Amore, Marcello; Sarto, Maria Sabrina; "Theoretical and Experimental Characterization of the EMP-Interaction with Composite-Metallic Enclosures;" May 2000; Pages 152-163.

2000 – De Clercq, A.; De Smedt, R.; De Zutter, D.; Laermans, E.; Lietart, N.; Olyslager, F.; "Numerical and Experimental Study of the Shielding Effectiveness of a Metallic Enclosure;" August 1999; Pages 202-213.

1999 – Brandli, B.; Ianoz, M.; Kalin, A.W.; Reusser, B.; Tabara, D.; Tesche, F.M.; Zwiack, P.; "Estimates of Lightning-Induced Voltage Stresses Within Buried Shielded Conduits;" November 1998; Pages 492-504.

1998 – Antonini, G.; Cristina, S.; Orlandi, A.; "A SPICE Model for Near-Field Transient Analysis of Ferromagnetic Grids;" May 1997; Pages 114-123.

1997 – D'Amore, Marcello; Sarto, Maria Sabrina; "Theory of Field-Excited Networks;" August 1996; Pages 212-220.

1996 – Balanis, Q.; Bergeron, J.A.; Cohen, J.; Osepchuk, J.M.; Peterson, R.C.; Roszyk, L.M.; "Measurement of Equivalent Power Density and RF Energy Deposition in the Immediate Vicinity of a 24-GHz Traffic Radar Antenna;" May – 1995; Pages 183-191.

1995 – Paul, Clayton R.; "A SPICE Model for Multiconductor Transmission Lines Excited by an Incident Electromagnetic Field;" November 1994; Pages 342-354.

1994 – Balanis, Constantine A.; Barber, George C.; Purchine, Michael P.; Tirkas, Panayiotis A.; "Finite-Difference Time-Domain Method for Electromagnetic Radiation, Interference, and Interaction with Complex Structures;" May 1993; Pages 204-214.

1993 – Paul, Clayton R.; "Literal Solutions for Time-Domain Crosstalk on Lossless Transmission Lines;" November 1992; Pages 433-444.

1992 – Kanda, Motohisa; Orr, David R.; Randa, James; "Thermo-Optic Designs for Electromagnetic-Field Probes for Microwave and Millimeter Waves;" August 1991; Pages 205-214.

1991 – Adams, Arlon Taylor; Harrington, Roger F.; Plumb; Richard George; ""An Electromagnetic Model for Multiconductor Connectors;" February 1990; Pages 38-52.

1990 – Lindsey, J.M.; Riggs, L.S.; Shumpert, T.H.; "Intermodulation Effects Induced on Parallel Wires by Transient Excitation;" August 1989; Pages 218-222.

1989 – Driver, Lanny D.; Kanda, Motohisa; "An Optically Linked Electric and Magnetic Field Sensor for Poynting Vector Measurement in the Near Fields of Radiating Sources; November 1988; Pages 495-503.

1988 – Francis, Michael; Hill, David A.; "Out-of-Band Response of Antenna Arrays;" November 1987; Pages 282-288.

1986 – Bennett, W. Scott; "An Error Analysis of the FCC Site-Attenuation Approximation;" August 1985; Pages 107-114.

1985 – Harmuth, Henning; Two possible papers by this author are documented; which won best paper is uncertain.

1984 – King, W. P.; Shen, H.M.; Wu, T.T.; Three possible papers by these authors are documented; which won best paper is uncertain.

1984 – Mulligan, Jr., J.H.; Paludi, Jr., C.A.; "Varactor Tuning Diodes as a Source of Intermodulation in RF Amplifiers;" November 1983; Pages 412-421.

1983 – Krider, E. Philip; Uman, Martin A.; "A Review of Natural Lightning: Experimental Data and Modeling;" May 1982; Pages 79-111.

1982 – Kanda, Motohisa; Ries, Francis X.; "A Broad-Band Isotropic Real-time Electric-Field Sensor (BIREs) Using Resistively Loaded Dipoles;" August 1981, Pages 122-132.

1981 – Arazm, Farrokh; Benson, Frank A.; "Nonlinearities in Metal Contacts at Microwave Frequencies;" August 1980; Pages 142-149.

1980 – Middleton, David; "Procedures for Determining the Parameters of the First-Order Canonical Models of Class A and Class B Electromagnetic Interference" and "Canonical Non-Gaussian Noise Models: Their implications for Measurement and for Prediction of Receiver Performance;" August 1979; Pages 190 – 219.

1979 – Harrington, R.F.; Sarkar, T.K.; Weiner, D.D.; "Analysis of Nonlinearly Loaded Multiport Antenna Structures Over an Imperfect Ground Plane Using the Volterra-Series Method;" May 1978; Pages 278 – 287.

1978 – Middleton, David; "Statistical-Physical Models of Electromagnetic Interference;" August – 1977; Pages 106 – 126.

1978 – Harmuth, Henning; "Selective Reception of Periodic Electromagnetic Waves with General Time Variation;" August 1977; Pages 137 – 144.

1976 – Lin, James C.; "Interaction of Electromagnetic Transient Radiation with Biological Materials;" May 1975; Pages 93-96.

1975 – Dvorak, Thomas; "Electromagnetic Field Immunity – A New Parameter in Receiver Design" and "Measurement of Electromagnetic Field Immunity;" August 1974; Pages 149 – 159.

1974 – Taylor, Clayborne D.; "Electromagnetic Pulse Penetration Through Small Apertures;" February 1973; Pages 17-26.

1973 – Harrison, Jr, C.W.; King, R.W.P.; "Excitation of a Coaxial Line Through a Transverse Slot;" November 1972; Pages 107-112.

**Recognition of the Recipients of the Best Paper Award Presented at the Annual IEEE International Symposium on EMC**

2006 "Signal Link-Path Characterization Up To 20 GHz Based On A Stripline Structure" by Jianmin Zhang, James L. Drewniak, David J. Pommerenke, and Richard E. DuBroff.

2005 "Feasibility of New Nanolayered Transparent Thin Films for Active Shielding of Low Frequency Magnetic Fields" by M. D'Amore, M.S. Sarto, A. Tamburano, and F. Sarto.

2004 "Improved Measurement of Radiated Emissions from Moving Rail Vehicles in the Frequency Range 9 kHz to 1 GHz" by A.J. Rovell, D. Bozec, S.A. Seller, L.M. McCormack, C.A. Marshman, and A.C. Marvin.

2003 Israel/Turkey: "Optimization for RF Coupling and Interference Reduction of Devices in Complex Systems" by E.S. Siah, T. Ozdemir, J.L. Volakis, P. Y. Papalambros, and R.W. Wiese.

Boston: "An Analytical Model for Studying the Electromagnetic Radiation of Power-bus Structures" by Thomas Fischer, Marco Leone and Manfred Albach.

2002 "Coupling to Devices in Electrically Large Cavities, or Why Classical EMC Evaluation Techniques are Becoming Obsolete" by J.M. Ladbury, T. Lehman, and G.H. Koepke.

2001 "On the Use of Three-Dimensional TEM Cells for Total Radiated Power Measurements" by Marco Klingler, Stephanie Egot, Jean-Pierre Ghys and Jean Rioult.

2000 "Shielding Effectiveness Estimation of Enclosures with Apertures" by I. Belokour, J. LoVerti and S. Kashyap.

1999 "Reverberation Chamber Relationships: Corrections and Improvements or Three Wrongs Can (almost) Make a Right" by J.M. Ladbury and G.H. Koepke.

1998 "Improving the Correlation between OATS, RF Anechoic Rooms, and GTEM Radiated Emission Measurements for a Directional Radiator at Frequencies between Approximately 150 MHz and 10 GHz" by Salvatore Celozzi.

1997 "Improvements in the CW Evaluations of Mode-Stirred Chambers" by John M. Ladbury, Galen H. Koepke, and Dennis G. Camell.

1996 "Experimental and Numerical Investigations of Fundamental Radiation Mechanisms in PCB Designs with Attached Cables" by D.M. Hockanson, J.L. Drewniak, T.H. Hubing, T. P. Van Doren, and C.W. Lam.

1995 "Data Evaluation of a Linear System by a Second Order Transfer Function" by Dennis G. Camell and Mark T. Ma

1994 "Investigation of Fundamental Mechanisms of Common-Mode Radiation from Printed Circuit Boards with Attached Cables" by James L. Drewniak, Todd H. Hubing, and Thomas P. Van Doren.

1993 "Response of a Network Containing Field-Excited Multiconductor Lossy Lines with Nonlinear Loads" by Marcello D'Amore and Maria Sabrina Sarto.

1990 "Effect of an Image Plane on Printed Circuit Board Radiation" by Robert F. German, Henry W. Ott, and Clayton R. Paul

1980 "The Spectrum of Radiation from Lightning Flashes" by D. M. Le Vine

1976 "Antennas for Nonsinusoidal Electromagnetic Waves" by H. F. Harmuth

1972 Regions 1-6 (USA) – "Establishing EMC Requirements for Digital Receivers" by Denmer D. Baxter and John J. O'Neil.

Regions 7-10 – "An Improved Design and Measurement of Attenuation" by M. L. Jarvis

1960 "Strong Signal Receiver Problems" by Donald McClenon

**Recognition of the Fellows of the EMC Society: The Past 50 Years**

Bruce Archambeault	James Mucciolli
Ecument Arvas	Katsuhiko Naito
Edward Aslan	Michel Nakhla
Hrvoje Babic	Edward Newman
Morrel Bachynski	Tamotsu Ninomiya
Constantine Balanis	Jurgen Nitsch
Keith Balmain	John Norgard
Frederick Bauer	Istvan Novak
Carl Baum	Robert Olsen
Clark Bell	Antonio Orlandi
Jack Bridges	John Osburn
Edwin Bronaugh	John Osepchuk
Gerard Capraro	Henry Ott
Flavio Canavero	Clayton Paul
Zoltan Cendes	L. Wilson Pearson
Vernon Chartier	Jose Perini
David Cheng	Edmund Miller
Pitindra Chowdhuri	Richard Mohr
Christos Christopoulos	Norihiko Morinaga
Donald Clark	John Anderson Plumer
Paolo Corona	Andrew Podgorski
William Cory	Ronald Pogorzelski
Marcello D'Amore	Sitthichai Poakayaudom
Rik De Donker	Vladimir Rakov
Daniel De Zutter	Adel Razeq
Hugh Denny	John Renner
Dixon	Edward Rothwell
Andrew Drozd	Albert Ruehli
James Drewniak	Alain Sabot
William Duff	John Sahalos
Irving Engelson	Tapan Sarkar
Nader Engheta	Risaburo Sato
Kurt Feser	H. Schlicke
Wolfgang Fichtner	Adolf Schwab
Franklin Fisher	Felix Schwering
Arthur Fong	Stephen Sebo
Victor Fouad Hanna	Dipak Sengupta
Ernest Freeman	Samuel Sensiper
Heyno Garbe	Gianluca Setti
Robert Garver	Zong Sha
Jacob Gavan	Derrill Shankle
Allen Glisson	Gustave Shapiro
Robert Goldblum	Sadakuni Shimada
Martin Graham	Takatashi Shindo
William Greason	Masaaki Shinji
Stanislaw Grzybowski	Ralph Showers
Wojciech Gwarek	Kenneth Siarkiewicz
Robert Hansen	Skomal
Roger Harrington	Albert Smith, Jr.
Donald Heirman	James Stewart
Rudolph Henning	Ryszard Struzak
Eric Herz	Toshio Sudo
Wolfgang Hoefer	Madhavan Swaminathan
Martial Honnell	Allen Taflave
A. Howland	Harold Taggart
Todd Hubing	Tasuku Takagi
Thomas Hussey	Edgar Taylor
Michel Ianoz	Paolo Tenti
Masaru Ishii	Jan Luiken
Koichi Ito	Frederick Tesche
Wasyli Janischewskyj	Gary Thiele
Bernhard Keiser	Leonard Thomas, Sr.
Warren Kesselman	Masamitsu Tokuda
Hiroshi Kikuchi	Martin Uman
Ahmed Kishk	Piergiorgio Uslenghi
Charles Knop	Nikolaos Uzunoglu
Prasad Kodali	Thomas Van Doren
Dieter Koenig	Edward Vance
Branko Kolundzija	Jacobus Vanwyk
William Kotheimer	John Volakis
Yoji Kotsuka	Donald Weiner
Stanley Kubina	Douglas Werner
Edvard Kuester	Perry Wilson
Jin-Fa Lee	Donald Wilton
Raymond Luebbers	Edward Wolff
Kwai-Man Luk	Ingo Wolff
Francois Martzloff	Chang-Yu Wu
Sarma Maruvada	Valeri Ya Kontorovich
Ferdy Mayer	Tat Soon Zaffanella
George Mc Clure	Luciano
Eric Michielssen	

**Recognition of the Most Loyal Exhibitors at the IEEE International Symposium on EMC: The Past 25 Years**

Advanced ElectroMagnetics, Inc.  
Agilent (formerly Hewlett Packard)  
A. H. Systems, Inc.  
Alion Science and Technology (formerly R&B Enterprises)  
AR Worldwide (formerly Amplifier Research)  
D.L.S. Electronic Systems  
Dayton T. Brown, Inc.  
Dynamic Sciences International, Inc.  
Elite Electronic Engineering, Inc.  
ETS- Lindgren (formerly The Electro-Mechanics Co. (EMCO),  
Holaday Industries, Inc., Keene Corp – Ray Proof Division,  
ElectroMagnetics, Inc., and Lindgren RF Enclosures, Inc.)  
Fischer Custom Communications, Inc.  
Instruments for Industry, Inc.  
ITEM Publications (formerly part of R&B Enterprises)  
Laird Technologies (acquired Instrument Specialties, Inc.)  
3M Industrial Electrical Products  
Retilf, Inc.  
Solar Electronics  
Spectrum Control, Inc.  
Spira Manufacturing Corp.  
Tech Etch, Inc.  
Tecknit  
Teseq (formerly Schaffner EMC Inc)  
Thermo Electron Corp. (includes Electro-Metrics and KeyTek Instrument Corp.)



Please note this program information is as accurate as possible. Unfortunately, before the digital age in the early days of the Society, some material was not available to complete this program. We apologize in advance for any errors shown or inadvertent oversight in not including some papers. If you have corrections or additions, please send these to Dan Hoolihan, EMC Historian, at d.hoolihan@ieee.org. Thank you!

The Transactions on EMC papers noted in this program back to 1966 are available for FREE to EMC Society Members on IEEE Xplore. IEEE members who are not members of the EMC Society may access these papers for a fee. For more information, visit [www.ieee.org](http://www.ieee.org).

