

STEVEN F. GLOVER

Sandia National Laboratories
ALBUQUERQUE, NM.

OFFICE: (505) 845-9620
EMAIL: sfglove@sandia.gov

EDUCATION

Ph.D. Electrical Engineering	May 2003	Purdue University, West Lafayette, Indiana
M.S. Electrical Engineering	May 1997	University of Missouri-Rolla, Rolla, Missouri
B.S. Electrical Engineering	May 1995	University of Missouri-Rolla, Rolla, Missouri
Associate of Technology in Electronics	May 1990	Linn Technical College, Linn, Missouri

Theses Titles:

Ph.D. "Modeling and stability analysis of power electronics based systems"

M.S. "Average value modeling and nonlinear control of DC power systems"

EMPLOYMENT HISTORY

Manager

Electrical Sciences and Experiments, Department 1353
Sandia National Laboratories, Albuquerque, New Mexico 2013 – present
Manager: Larry X. Schneider - (505) 845-7135 - lxshne@sandia.gov

- Selected as Manager of one Department in the new Electrical Sciences Group. This group was initiated at the VP level to further strengthen Electrical Sciences at Sandia. The expanded capabilities in this Department include advanced microgrids, power electronics, controls, optimization, high voltage and plasma sciences, electron beam accelerators for high heat flux and wind tunnel research, and electromagnetic experiments.
- PI for the Grand Challenge LDRD on Secure Scalable Microgrids developing advanced tools (based on nonlinear controls, informatics, unified power flow controllers, energy storage, and experimental validation) for AC/DC microgrids and smart grid concepts (\$10.2 M over three years)
- Actively developing new partnerships with center 6000, Shell Oil Company, and the renewable energy industry.
- Active Q clearance

Manager

Advanced Pulsed Power Systems, Department 1654
Sandia National Laboratories, Albuquerque, New Mexico 2012 – 2013
Manager: Larry X. Schneider - (505) 845-7135 - lxshne@sandia.gov

- PI for the Grand Challenge LDRD on Secure Scalable Microgrids developing advanced tools (based on nonlinear controls, informatics, unified power flow controllers, energy storage, and experimental validation) for AC/DC microgrids and smart grid concepts (\$10.2 M over three years)
- Advancing research in plasma science through hiring a Plasma Physicist studying "Fiber Optic Streak Spectroscopy of Gas Cells in Extreme Radiation Environments" through the Sandia Early Career LDRD program

- Pulsed and DC charged Photoconductive Semiconductor Switch research for the use in Pulsed Power switch triggering and high current applications funded by LDRDs and the Defense Threat Reduction Agency
- PI for ferroelectric based opening switch research in pulsed power applications, obtained funding through an LDRD and Lockheed Martin Shared Vision program
- Actively developing new partnerships with center 6000, Shell Oil Company, and the renewable energy industry.
- Active Q clearance

*Principal Member of the
Technical Staff*

Sandia National Laboratories, Albuquerque, New Mexico 2007 – 2012
 Manager: Larry X. Schneider - (505) 845-7135 - lxshne@sandia.gov

- Leading multi-year effort to design a compact pulsed power driver for isentropic compression experiments focusing on advanced techniques involving solid dielectrics (seams, terminations, and reliability), switches, modularity, and precision-programmable pulse power systems (\$8.705 M over five years)
- PI for the Grand Challenge LDRD on Secure Scalable Microgrids developing advanced tools (based on nonlinear controls, informatics, unified power flow controllers, energy storage, and experimental validation) for AC/DC microgrids and smart grid concepts (\$10.2 M over three years)
- Pulsed and DC charged Photoconductive Semiconductor Switch research for the use in Pulsed Power switch triggering and high current applications funded by LDRDs and the Defense Threat Reduction Agency
- PI for ferroelectric based opening switch research in pulsed power applications, obtained funding through an LDRD and Lockheed Martin Shared Vision program
- Power, power electronic, and pulsed power systems research and design, (expanded the breadth of skills in department 1654 through the strategic hire of another power electronics, controls, and systems expert)
- 2 technical advances
- Principal investigator / project lead on multiple simultaneous projects, managing/tracking resources and people at a level of fifty seven people at an effort equal to nine FTEs
- Direct experiments and laboratory efforts for safe operations including highly integrated hazards of (pressure, chemical, electrical (including high voltage), laser, sound, gas, radiation, and mechanical)
- Mentor/Supervisor for Peter Foster from the Defense Nuclear Facilities Safety Board (2/2011 – 2/2012)
- Mentor for Teachers in the DOE program ‘Academies Creating Teacher Scientists’ 2010
- Completed all Pre-management training courses Orientation to Management - LDR010, Orientation to Management - OM141, and Skills for Emerging Leaders -LDR020

- Actively developing new partnerships with center 6000, Shell Oil company, and the renewable energy industry.
- Active Q clearance

*Senior Member of the
Technical Staff*

Sandia National Laboratories, Albuquerque, New Mexico 2003 – 2007
 Manager: Larry X. Schneider - (505) 845-7135 - lxshne@sandia.gov

- 1 MeV electron beam accelerator and power electronic based magnet controls research, design, and construction for a hypersonic wind tunnel experiment in the Mach 8-12 range. This work was funded by the Army and the Air Force.
- High power electron beam port design and construction for isolating vacuum (1e-7 torr) from atmosphere through a half inch diameter aperture.
- Lead multi-year effort to design a compact pulsed power driver for material ramped compression experiments including the first identified use of genetic optimization in the pulsed power field (\$2.085 M over two years)
- Pulse Arrested Spark Discharge wire system diagnostic research and design for the US Navy and the Federal Aviation Administration which lead to an R&D 100 award and a commercially available device.
- PI for pulse charged Photoconductive Semiconductor Switch research for the use of Pulsed Power switch triggering funded through an LDRD
- Low energy laser triggering research for spark gap switches, (μJ levels)
- Power, power electronic, and pulsed power systems research and design
- 10 technical advances
- Principal investigator / project lead on multiple simultaneous projects
- Oversee and direct the efforts and safety of engineers and technicians
- Direct experiments and laboratory efforts for safe operations including hazards such as pressure, chemical, electrical (including high voltage), and mechanical

*Adjunct Assistant
Professor*

University of New Mexico, Albuquerque, New Mexico 2006 – Present

Research Engineer

Purdue University, West Lafayette, Indiana 1998 - 2003

- Simulation, model validation, and support of integrated power system development for the Naval Sea Systems Command
- Hardware design, modeling, control, and analysis of AC/DC power systems and subsystems
- Stability analysis of a reduced-scale shipboard power system
- Direct graduate and undergraduate students in laboratory experiments and safety
- Assist in writing proposals
- Board and component level analog, digital, and power electronic circuit design and troubleshooting
- Instrumentation design
- Programmable logic device implementation
- Electromagnetic interference troubleshooting
- Ground loop troubleshooting

- Control design using digital signal processors
- Advanced control and stability analysis

Consultant Asea Brown Boveri, Jefferson City, Missouri 1997 - 2003

- Designed a distribution level power electronics based solid-state transformer rated at 10 kVA, 7200 Vrms input, and 240 Vrms output
- Developed research laboratory and safety procedures used to construct and operate the solid-state transformer

*Associate
Research Engineer* University of Missouri-Rolla, Rolla, Missouri 1997 - 1998

- Hardware design, modeling, control, and evaluation of power systems and subsystems
- Constructed a DC power system

*Research Engineer
and Consultant* P.C.Krause and Associates, West Lafayette, Indiana 1996 - 2001

- Simulation, model validation, and support of integrated power system development for the Naval Sea Systems Command
- Stability analysis of a Cryogenic Ground Transportable Radar System for the Ballistic Missile Defense Organization

*Graduate
Research Assistant* University of Missouri-Rolla, Rolla, Missouri 1995 - 1996

- Performed research in power system stability
- Performed research in the area of smart structures
 - In particular researched modeling, control, sensing, and actuation of lightly damped mechanical structures

*Student Assistant
Technical Level* University of Missouri-Rolla, Rolla, Missouri 1993 - 1995

- Performed research in the area of smart structures
 - In particular researched modeling, control, sensing, and actuation of lightly damped mechanical structures

*Student
Research Assistant* University of Missouri-St. Louis, St. Louis, Missouri 1992 - 1993

- Performed research in the use of lasers for detection and cooling of atomic particles

JOURNAL PUBLICATIONS

- [1] S.D. Sudhoff, K.A. Corzine, S.F. Glover, H.J. Hegner, and H.N. Robey, "DC link stabilized field oriented control of electric propulsion systems," *IEEE Transactions on Energy Conversion*, Vol. 13, No. 1, March 1998, pp. 27-33.

- [2] S.F. Glover and S.D. Sudhoff, "An experimentally validated nonlinear stabilizing control for power electronics based power systems," *Journal of Aerospace - Society of Automotive Engineers Transactions*, 1998, Section 1, pp. 68-77.
- [3] S.D. Sudhoff and S.F. Glover, "Modeling techniques, stability analysis, and design criteria for DC power systems with experimental validation," *Journal of Aerospace - Society of Automotive Engineers Transactions*, 1998, Section 1, pp. 52-67.
- [4] S.D. Sudhoff, S.F. Glover, P.T. Lamm, D.H. Schmucker, and D.E. Delisle, "Admittance space stability analysis of power electronic systems," *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 36, No. 3, July 2000, pp. 965-973.
- [5] E.R. Ronan, S.D. Sudhoff, S.F. Glover, and D.L. Galloway, "A power electronic based distribution transformer," *IEEE Transactions on Power Delivery*, Vol. 17, No. 2, April 2002, pp. 537-543.
- [6] S.D. Pekarek, J. Tichenor, N. Benavides, J. Wooldridge, A. Koenig, S. Brouwer, P. Beccue, S.D. Sudhoff, B.T. Kuhn, S.F. Glover, D.C. Aliprantis, J. Byoun, C. Kwon, B. Loop, O. Lorrenze, B. Aston, J. Ciezki, and D.E. Delisle, "Development of a testbed for design and evaluation of power electronic based generation and distribution systems," *Society of Automotive Engineers 2002 Transactions – Journal of Aerospace*, Vol. 3, 2002, pp. 833-840.
- [7] F.J. Zutavern, S.F. Glover, K.W. Reed, M.J. Cich, A. Mar, M.E. Swalby, T.A. Saiz, and M.L. Horry, F.R. Gruner, and F.E. White, "Fiber-optically controlled pulsed power switches," *IEEE Transactions on Plasma Science*, Vol. 36, No. 5, Part 3, October 2008, pp. 2533-2540.
- [8] S.F. Glover, F.E. White, K.W. Reed, and M.J. Harden, "Genetic optimization for pulsed power system configuration," *IEEE Transactions on Plasma Science*, Vol. 37, No. 2, February 2009, pp. 339-346.
- [9] J.R. Woodworth, J.A. Alexander, F.R. Gruner, W.A. Stygar, M.J. Harden, J.R. Blickem, G.J. Denison, F.E. White, L.M. Lucero, H.D. Anderson, L.F. Bennett, S.F. Glover, D. Van DeValde, "Low-Inductance Gas Switches for Linear Transformer Drivers," *Physical Review Special Topics – Accelerators and Beams*, 12, 060401, 2009.
- [10] F.J. Zutavern, S.F. Glover, M.E. Swalby, M.J. Cich, A. Mar, G. Loubriel, L.D. Roose, and F.E. White, "DC charged GaAs PCSSs for trigger generators and other high voltage applications," *IEEE Transactions on Plasma Science*, Vol. 38, No. 1, October, 2010, pp. 2708-2715.
- [11] S.F. Glover, F.J. Zutavern, M.E. Swalby, M.J. Cich, G. Loubriel, A. Mar, and F.E. White, "Pulsed and DC charged PCSS based trigger generators," *IEEE Transactions on Plasma Science*, Vol. 38, No. 1, October, 2010, pp. 2701-2707.
- [12] S.F. Glover, L.X. Schneider, K.W. Reed, G.E. Pena, J.-P. Davis, C.A. Hall, R.J. Hickman, K.C. Hodge, J.M. Lehr, D.J. Lucero, D.H. McDaniel, J. G. Puissant, J.M. Rudys, M.E. Sceiford, S.J. Tullar, D.M. Van De Valde, and F.E. White, "Genesis: A 5 MA programmable pulsed power driver

for isentropic compression experiments," *IEEE Transactions on Plasma Science*, Vol. 38, No. 1, October, 2010, pp. 2620-2626.

- [13] S.F. Glover, F.E. White, P.J. Foster, D.J. Lucero, L.X. Schneider, K.W. Reed, G.E. Pena, J.-P. Davis, C.A. Hall, R.J. Hickman, K.C. Hodge, R.W. Lemke, J.M. Lehr, D.H. McDaniel, J. G. Puissant, J.M. Rudys, M.E. Sceiford, S.J. Tullar, and D.M. Van De Valde, "Status of Genesis: A 5 MA Programmable Pulsed Power Driver," Submitted to *IEEE Transactions on Plasma Science*, Accepted for Publication.
- [14] S.F. Glover, J.-P. Davis, L.X. Schneider, K.W. Reed, G.E. Pena, C.A. Hall, H.L. Hanshaw, R.J. Hickman, K.C. Hodge, R.W. Lemke, J.M. Lehr, D.J. Lucero, D.H. McDaniel, J. G. Puissant, J.M. Rudys, M.E. Sceiford, S.J. Tullar, D.M. Van De Valde, F.E. White, L. K. Warne, R. S. Coats, and W. A. Johnson, "Impact of time-varying loads on the programmable pulsed power driver called Genesis," Submitted to *IEEE Transactions on Plasma Science*, Accepted for Publication.

CONFERENCE PUBLICATIONS

- [1] R. R. Damle, V.S. Rao, S.F. Glover, and F.J. Kern, "Control of smart structures using analog neural network hardware," *Proceedings of SPIE - Smart Structures and Materials Conference*, 1995, San Diego, California, Vol. 2442, pp. 412-422.
- [2] R.D. Nelson, S.F. Glover, and V.S. Rao, "Vibration suppression of smart structural systems using predictive control," *Proceedings of SPIE – Smart Structures and Materials Conference*, 1997, San Diego, California, Vol. 3039, pp. 350-361.
- [3] S.F. Glover, S.D. Sudhoff, H.J. Hegner, and H.N. Robey Jr., "Average value modeling of a hysteresis controlled DC/DC converter for use in electromechanical system studies," *Proceedings of the 1997 Naval Symposium on Electric Machines*, July 28-31, 1997, Newport, Rhode Island, pp. 77-84.
- [4] S.F. Glover and S.D. Sudhoff, "An experimentally validated nonlinear stabilizing control for power electronics based power systems," *Proceedings of the 1998 Society of Automotive Engineers Aerospace Power Systems Conference*, April 21-23, Williamsburg, Virginia, pp. 71-80.
- [5] S.D. Sudhoff and S.F. Glover, "Modeling techniques, stability analysis, and design criteria for DC power systems with experimental validation," *Proceedings of the 1998 Society of Automotive Engineers Aerospace Power Systems Conference*, April 21-23, Williamsburg, Virginia, pp. 55-69.
- [6] E.R. Ronan, D.L. Galloway, S.D. Sudhoff, and S.F. Glover, "Application of power electronics to the distribution transformer," *Proceedings of the Asea Brown Boveri Electric Utility Conference*, March 22-30, 1999.
- [7] E.R. Ronan, D.L. Galloway, S.D. Sudhoff, and S.F. Glover, "Application of power electronics to the distribution transformer," *Proceedings of the IEEE Applied Power Electronics Conference and Exposition – APEC*, New Orleans, Louisiana, February 6-10, 2000, pp. 861-867.

- [8] S.D. Sudhoff and S.F. Glover, "Three dimensional stability analysis of DC power electronics based systems," *Proceedings of the Power Electronics Specialist Conference*, Galway, Ireland, June 19-22, 2000, pp. 101-106.
- [9] S.D. Sudhoff, S.D. Pekarek, B.T. Kuhn, S.F. Glover, J. Sauer, D.E. Delisle, "Naval combat survivability test beds for investigation of issues in shipboard power electronics based power and propulsion systems," *Proceedings of the IEEE Power Engineering Society Summer Meeting*, July 21-25, 2002, Chicago, Illinois, USA.
- [10] S.D. Sudhoff, S.F. Glover, S.D. Pekarek, S.H. Žak, E.J. Zivi, J.D. Sauer, and D.E. Delisle, "Stability analysis of a DC power electronics based distribution system," *Society of Automotive Engineers 2002 Power Systems Conference*, Coral Springs, Florida, October 29-31, 2002.
- [11] S.F. Glover, S.H. Žak, S.D. Sudhoff, and E.J. Zivi, "Polytopic modeling and Lyapunov stability analysis of power electronics systems," *Society of Automotive Engineers 2002 Power Systems Conference*, Coral Springs, Florida, October 29-31, 2002.
- [12] S.D. Sudhoff, S.F. Glover, S.H. Žak, S.D. Pekarek, E.J. Zivi, D. Clayton, D.E. Delisle, "Analysis methodologies for DC power distribution systems," *Thirteenth International Ship Control Systems Symposium*, Paper 235, 7-9 April 2003, Orlando, Florida, USA
- [13] L. Schneider, S. Glover, R. Lipinski, T. Lockner, G. Pena, and K. Reed, "Progress towards a 200 MW Electron Beam Accelerator for the RDHWT/Mariah II Program," *24th AIAA Aerodynamic Measurement Technology and Ground Testing Conference*, Portland, Oregon, June 28-1, 2004
- [14] F.J. Zutavern, K.W. Reed, S.F. Glover, A. Mar, M.H. Ruebush, M.L. Horry, M.E. Swalby, J.A. Alexander, T.L. Smith, and F.E. White, "Fiber-optic controlled PCSS triggers for high voltage pulsed power switches," *2005 IEEE Pulsed Power Conference*, June, 2005, pp. 810-813.
- [15] S.F. Glover, F.J. Zutavern, K.W. Reed, M.E. Swalby, A. Mar, M.L. Horry, and F.E. White, "Fiber-optic controlled PCSS triggers for high voltage pulsed power switches," *2006 Power Modulator Conference*, May, 2006, pp. 192-195.
- [16] F.J. Zutavern, S.F. Glover, K.W. Reed, M.J. Cich, A. Mar, M.E. Swalby, T.A. Saiz, and M.L. Horry, "PCSS triggered pulsed power switches," *IEEE Pulsed Power Plasma Science Conference*, Albuquerque, NM, 2007, pp. 231-235.
- [17] S.F. Glover, K.W. Reed, F.E. White, and M.J. Harden, "Genetic optimization for pulsed power system configuration," *IEEE International Pulsed Power and Plasma Science Conference*, Albuquerque, NM, 2007, pp. 226-230
- [18] M.J. Cich, R. Kaplar, J. Weiss, A. Mar, T. Saiz, M. Swalby, F.J. Zutavern, S.F. Glover, M.L. Horry, K.W. Reed, "GaAs PCSS fabrication for improved reliability," *IEEE International Pulsed Power and Plasma Sciences Conference*, Albuquerque, NM, 2007, pp. 236-239

- [19] S.F. Glover, J.A. Alexander, K.W. Reed, G.E. Pena, M.L. Horry, J.M. Usher, and J.M. Lehr, "Laser triggering of spark gap switches with less than 100 μ J's of energy," *IEEE International Pulsed Power and Plasma Science Conference*, Albuquerque, NM, 2007, pp. 240-244
- [20] F.E. White, S.F. Glover, K.W. Reed, and M.J. Harden, "Current adder with programmable pulse shaping," *IEEE International Pulsed Power and Plasma Science Conference*, Albuquerque, NM, 2007, pp. 156-160
- [21] T.A. Saiz, F.J. Zutavern, S.F. Glover, K.W. Reed, M.J. Cich, A. Mar, M.E. Swalby, and M.L. Horry, "PCSS lifetime testing for pulsed power applications," *IEEE Pulsed Power Plasma Science Conference*, Albuquerque, NM, 2007, pp. 106-109
- [22] M.E. Swalby, S.F. Glover, F.J. Zutavern, K.W. Reed, M.J. Cich, A. Mar, T.A. Saiz, M.L. Horry, F.E. White, "A test facility for PCSS triggered pulsed power switches," *IEEE Pulsed Power Plasma Science Conference*, Albuquerque, NM, 2007, pp. 101-105
- [23] J.R. Woodworth, K. Hahn, J.A. Alexander, G.J. Denison, J.J. Leckbee, S.F. Glover, P.E. Wakeland, J.R. Blickem, R. Starbird, M.J. Harden, H.D. Anderson, F.R. Gruner, and D. Van DeValde, "Gas switch studies for linear transformer drivers," *IEEE Pulsed Power Plasma Science Conference*, Albuquerque, NM, 2007, pp. 250-253.
- [24] F.J. Zutavern, S.F. Glover, M.E. Swalby, M.J. Cich, A. Mar, G. Loubriel, L.D. Roose, and F.E. White, "GaAs PCSSs for DC applications," *17th IEEE International Pulsed Power Conference*, Washington, DC, June 29 – July 2, 2009, pp. 1448-1453.
- [25] S.F. Glover, F.J. Zutavern, M.E. Swalby, M.J. Cich, G. Loubriel, A. Mar, and F.E. White, "Pulsed and DC charged PCSS based trigger generators," *17th IEEE International Pulsed Power Conference*, Washington, DC, June 29 – July 2, 2009, pp. 1444-1447.
- [26] S.F. Glover, L.X. Schneider, K.W. Reed, G.E. Pena, J.-P. Davis, C.A. Hall, R.J. Hickman, K.C. Hodge, J.M. Lehr, D.J. Lucero, D.H. McDaniel, J. G. Puissant, J.M. Rudys, M.E. Sceiford, S.J. Tullar, D.M. Van De Valde, and F.E. White, "Genesis: A 5 MA programmable pulsed power driver for isentropic compression experiments," *17th IEEE International Pulsed Power Conference*, Washington, DC, June 29 – July 2, 2009, pp. 763-767.
- [27] J.M. Lehr, K.C. Hodge, S.F. Glover, G.E. Pena, and L.X. Schneider, "Evaluation of spark gap switches operated at low percent of self break voltage," *17th IEEE International Pulsed Power Conference*, Washington, DC, June 29 – July 2, 2009, presentation only.
- [28] K.W. Struve, M.E. Cuneo, J.-P. Davis, S.F. Glover, K.R. LeChien, J.J. Leckbee, M.G. Mazarakis, G.R. McKee, J.L. Porter, M.E. Savage, B.S. Stoltzfus, W.A. Stygar, J.R. Woodworth, "Recent pulsed-power technology advances in the pulsed power sciences center at Sandia National Laboratories," *IET European Pulsed Power Conference*, Sept. 21 – 25, 2009, pp. 1-4.
- [29] S.F. Glover, J.-P. Davis, L.X. Schneider, K.W. Reed, G.E. Pena, C.A. Hall, H.L. Hanshaw, R.J. Hickman, K.C. Hodge, R.W. Lemke, J.M. Lehr, D.J. Lucero, D.H. McDaniel, J. G. Puissant, J.M.

Rudys, M.E. Sceiford, S.J. Tullar, D.M. Van De Valde, F.E. White, L. K. Warne, R. S. Coats, and W. A. Johnson, "Impact of time-varying loads on the programmable pulsed power driver called Genesis," *18th IEEE International Pulsed Power Conference*, Chicago, Il., June 19-23, 2011, pp. 1508-1515, invited paper.

- [30] S.F. Glover, F.E. White, P.J. Foster, D.J. Lucero, L.X. Schneider, K.W. Reed, G.E. Pena, J.-P. Davis, C.A. Hall, R.J. Hickman, K.C. Hodge, R.W. Lemke, J.M. Lehr, D.H. McDaniel, J. G. Puissant, J.M. Rudys, M.E. Sceiford, S.J. Tullar, and D.M. Van De Valde, "Status of Genesis: A 5 MA Programmable Pulsed Power Driver," *18th IEEE International Pulsed Power Conference*, Chicago, Il., June 19-23, 2011, pp. 1309-1314.
- [31] F.J. Zutavern, S.F. Glover, A. Mar, M.J. Cich, G.M. Loubriel, M.E. Swalby, R.T. Collins, K.H. Greives, and N.D. Keator, "High current, multi-filament photoconductive semiconductor switching," *18th IEEE International Pulsed Power Conference*, Chicago, Il., June 19-23, 2011, pp. 1112-1119, invited paper.
- [32] J. Neely, S. Pekarek, S. Glover, J. Finn, O. Wasynczuk, and B. Loop, "An economical diesel engine emulator for micro-grid research," *International Symposium on Power Electronics, Electrical Drives, Automation and Motion (SPEEDAM)*, June 20th-22nd, 2012, Sorrento, Italy, accepted for publication.
- [33] J. Neely, S. Glover, O. Wasynczuk, B. Loop, "Wind turbine emulation for intelligent microgrid development," *IEEE Cyber 2012 Conference*, May 27th-31st, 2012, Bangkok, Thailand, accepted for publication.
- [34] S. Glover, J. Neely, A. Lentine, J. Finn, F. White, P. Foster, O. Wasynczuk, S. Pekarek, B. Loop, "Secure Scalable Microgrid Test Bed at Sandia National Laboratories," *IEEE Cyber 2012 Conference*, May 27th-31st, 2012, Bangkok, Thailand, accepted for publication.
- [35] O. Wasynczuk, L.J. Rashkin, S.D. Pekarek, R.R. Swanson, B.P. Loop, N. Wu, S. Glover, J. Neely, "Voltage and Frequency Regulation Strategies in Isolated AC Micro-Grids," *IEEE Cyber 2012 Conference*, May 27th-31st, 2012, Bangkok, Thailand, accepted for publication.
- [36] S.F. Glover, P.J. Foster, D.H. McDaniel, F.E. White, G.E. Pen, and F.J. Zutavern, "Pulsed power switch modeling for broad operation," *2012 Power Modulator Conference*, San Diego, Ca., June 3-7, 2012, accepted for publication.
- [37] S.F. Glover, F.E. White, G.E. Pena, and P.J. Foster, "Status of Protogen the first integration of Genesis technologies," *2012 Power Modulator Conference*, San Diego, Ca., June 3-7, 2012, accepted for publication.

OTHER PUBLICATIONS

- [1] L. Schneider, K. Howard, S. Glover, T. Lockner, and M. Dinallo, "A new capability to detect and locate insulation defects in complex wiring systems," *IEEE Electrical Insulation Magazine*, vol. 21, no. 4, July-Aug 2005, pp. 14-20.

PRESENTATIONS

"Stability criteria for analysis of DC power systems," *Society of Automotive Engineers Aerospace Power Systems Conference*, San Diego, California, October 31-November 2, 2000.

"Generalized Nyquist theory and power system stability," *Energy Sources and Systems Seminar Series*, Purdue University, West Lafayette, Indiana, November 17, 2000.

"New control architecture for future distributed power electronics systems," *Energy Sources and Systems Seminar Series*, Purdue University, West Lafayette, Indiana, March 23, 2001.

"AC system studies: AC stability and performance during pulsed power loads," *Energy Systems Analysis Consortium Annual Meeting*, West Lafayette, Indiana, March 6-7, 2002

"Warship power and propulsion system test bed," *American Society of Naval Engineers Symposium*, Bloomington, Indiana, May 14-16, 2002.

"Fiber-optic controlled PCSS triggers for high voltage pulsed power switches," *2006 Power Modulator Conference*, May, 2006.

"Modular Programmable Current Shaping Platform for Isentropic Compression Experiments," *Sandia National Laboratories Pulsed Power Series Seminar* April, 2007.

"Genetic optimization for pulsed power system configuration," *IEEE International Pulsed Power and Plasma Science Conference*, Albuquerque, NM, 2007

"Laser triggering of spark gap switches with less than 100 μ J's of energy," *IEEE International Pulsed Power and Plasma Science Conference*, Albuquerque, NM, 2007

"Genetically optimized programmable ICE driver" *Pulsed Power Seminar*, Sandia National Laboratories, NM, July 8th, 2008.

"Pulsed and DC charged PCSS based trigger generators," *17th IEEE International Pulsed Power Conference*, Washington, DC, June 29 – July 2, 2009

"Genesis: A 5 MA programmable pulsed power driver for isentropic compression experiments," *17th IEEE International Pulsed Power Conference*, Washington, DC, June 29 – July 2, 2009

"An introduction to pulsed power and energy security research at Sandia National Laboratory," *Seminar Missouri University of Science and Technology*, Rolla, Missouri, February 24, 2011

“An introduction to pulsed power and energy security research at Sandia National Laboratory,” *Seminar Missouri University – Columbia*, Columbia, Missouri, February 25, 2011

“Genesis: A 5 MA programmable pulsed power driver for isentropic compression experiments,” *Invited presentation to the Albuquerque IEEE Section*, Albuquerque, New Mexico, April 20th, 2011

“Impact of time-varying loads on the programmable pulsed power driver called Genesis,” *Invited presentation to the 18th IEEE International Pulsed Power Conference*, Chicago, IL., June 19-23, 2011

“Secure Scalable Microgrid Project at Sandia National Laboratories,” *Invited presentation to the 2012 DOE Microgrid Workshop*, Chicago, IL., July 29th – August 1st, 2012

“Status of Genesis a Programmable Pulsed Power Driver,” *Fundamental Science with Pulsed Power Research Opportunities and User Meeting*, Sandia National Laboratories, Albuquerque, NM., August 5th-8th, 2012

“Achieving High Penetration of Variable Generation with Inverter and Storage Technology,” *Invited presentation to the 2nd Microgrids Summit: Military and Commercial*, April 29th – May 1st, 2013.

PATENTS AND TECHNICAL ADVANCES

S.D. Sudhoff and S.F. Glover,
"Nonlinear Stabilizing Control for Power Electronic Based Systems,"
U.S. Patent No. 6,051,941, April 18, 2000.

Technical advances 10097, 10123, 10213, 10502, 10626, 10825, 10826, 10827, 10828, 10830, 12120, 12165, 12350, and 12351.

PROGRAMMING LANGUAGES / SIMULATION PACKAGES

C/C++, Pascal/Turbo Pascal, Basic, FoxPro, 8088 Assembly, Advanced Computer Simulation Language (ACSL), VHDL, Fortran, MATLAB, Stella/Bertha, and Tricomp

ACTIVITIES

<i>Reviewer</i>	IEEE Transactions on Plasma Science
<i>Reviewer</i>	IEEE Transactions on Energy Conversion
<i>Reviewer</i>	IEEE Transactions on Smart Grid
<i>Reviewer</i>	IEEE Transactions on Industrial Electronics
<i>Reviewer</i>	IEEE Transactions on Sustainable Energy
<i>Reviewer</i>	IEEE American Control Conference
<i>Reviewer</i>	IEEE Power Electronic Letters
<i>Reviewer</i>	IEEE Power Electronics and Machines for Wind Applications Conference
<i>Reviewer</i>	IEEE SmartGridComm 2012 Symposium - Support for Storage, Renewable Sources, and MicroGrid
<i>Reviewer</i>	Journal named Vacuum

<i>Reviewer</i>	Small Business Innovation Research / Small Business Technology Transfer
<i>Member</i>	Institute of Electrical and Electronics Engineers
Session Chair	2009 IEEE Pulsed Power Conference (Poster session)
Session Chair	2011 IEEE International Pulsed Power Conference (Components I: Insulation and Dielectric Breakdown)
<i>Member</i>	Our Lady of Fatima School Board (2005-2007)
<i>Member</i>	Our Lady of Fatima Building and Maintenance Committee (2005-2007)
<i>Referee</i>	American Youth Soccer Organization (2004-present)
<i>Division Commissioner</i>	American Youth Soccer Organization (2006-2007)
<i>Region Board Member</i>	American Youth Soccer Organization (2007-present)
<i>Acting Area Board Member</i>	American Youth Soccer Organization (2010-2011)
<i>Section Board Member</i>	American Youth Soccer Organization (2010-present)
<i>Member</i>	Phi Kappa Phi (-2006)
Co-Chair	Invited Session on Intelligent Microgrids and Components at the IEEE Cyber 2012 Conference, May 27 th -31 st , 2012, Bangkok, Thailand

HONORS

Graduated Summa Cum Laude From the University of Missouri Rolla
 Electrical Engineering Honors Scholar Program
 National Dean's List 1991-1992, 1992-1993

AWARDS

1993-94	Caterpillar Inc. Scholarship Lipscomb Scholarship UMR Transfer Scholarship Sprint Scholarship Curators University Scholarship
1994-1995	Kansas City Power & Light Scholarship Chevron Scholarship Sprint Scholarship Roy N. McBride Scholarship/Loan Hattie M. Strong Fnd. Competitive Loan Curators University Scholarship Electrical Engineering Dept. Scholarship Grimm Scholarship
1995-1998	Chancellors Fellowship
1998-1999	APSAC Grant
2000-2001	APSAC Grant
2006	-Sandia National Laboratories Employee Recognition Award Nomination as a member of the Photoconductive Semiconductor Switch Trigger Team -Sandia National Laboratories Award for Excellence: for outstanding contributions to the development of PASD

- 2007 Interagency Partnership Award from the Federal Laboratory Consortium for Technology Transfer
- 2011 Employee Recognition Award Nomination for Individual Leadership, Nominated by Colleagues at Sandia National Laboratories

TECHNICAL REPORTS

- [1] S.D. Sudhoff, S.F. Glover, and O. Wasynczuk, “Dynamic Performance Analysis of an Integrated Power System,” Technical Progress Report (Interim Report) for Naval Sea Systems command, P.C. Krause and Associates, Inc., March 1997, 173 pages.
- [2] S.D. Sudhoff, E.A. Walters, and S.F. Glover, “Detailed Computer Simulation of the Ship Service Inverter Module,” Technical Report for Naval Sea Systems Command, Purdue University, University of Missouri-Rolla, University of Wisconsin-Milwaukee, and P.C. Krause and Associates, Inc., December 1997, 33 pages.
- [3] S.D. Sudhoff, J.T. Alt, P.L. Chapman, K.A. Corzine, J.L. Drewniak, S.F. Glover, and B.T. Kuhn, “Analysis and Specification of Full Scale Engineering Development Integrated Power System,” Interim Technical Progress Report for Naval Sea Systems Command, Purdue University, and P.C. Krause and Associates, Inc., May 1998, 197 pages.
- [4] S.D. Sudhoff, J.T. Alt, P.L. Chapman, K.A. Corzine, J.L. Drewniak, S.F. Glover, and B.T. Kuhn, “Analysis and Specification of Full Scale Engineering Development Integrated Power System,” Final Technical Report for Naval Sea Systems Command, Purdue University, and P.C. Krause and Associates, Inc., February 19, 1999, 475 pages.
- [5] S.F. Glover and S.D. Sudhoff, “Cryogenic Ground Transportable Radar System Stability,” Phase 1 Final Technical Report for Ballistic Missile Defense Organization, March 22, 1999, 100 pages.
- [6] S.D. Sudhoff, S.F. Glover, and B.T. Kuhn, “IPS FSAD System Model Verification,” Final Technical Report for Naval Sea Systems Command, Purdue University, and P.C. Krause and Associates, Inc., October 28, 1999, 112 pages.
- [7] S.F. Glover, M.B. Higgins, G.E. Pena, L.X. Schneider, and T.R. Lockner, “Assessment of the Non-Destructive Nature of PASD on Wire Insulation Integrity,” Sand report for the Federal Aviation Administration and Sandia National Laboratories, September, SAND2003-3430, September 2003, 43 pages.
- [8] Larry X Schneider, S. F. Glover, G. E. Pena, K. W. Reed, R. J. Lipinski, T. R. Lockner, “Progress Towards a 200 MW Electron Beam Accelerator for the RDHWT/Mariah II Program”, SAND2004-2421, June 2004, 10 pages.
- [9] Larry X Schneider, Michael Dinallo, R Kevin Howard, Thomas R Lockner Steven F Glover, Gary E Pena, “Pulse Arrested Spark Discharge (PASD) Wiring Diagnostic”, SAND2004-4127.

- [10] S. F. Glover, K. W. Reed, M. L. Horry, F. E. White, M. J. Madlener, M. J. Harden, H. D. Anderson, "Flyer Plate Driver with Programmable Load Current Waveform: Initial Demonstration", February 2005.
- [11] Larry X Schneider, M. Dinallo, R. K. Howard, S. F. Glover, G. E. Pena, T. R. Lockner, "Pulse Arrested Spark Discharge (PASD) Wiring Diagnostic", Sand report for the Federal Aviation Administration and Sandia National Laboratories, SAND2005-0697, February 2005, 6 pages.
- [12] L. X. Schneider, R.K. Howard, S. F. Glover, T. Lockner, M. Dinallo, G. Pena, "A New Capability to Detect and Locate Insulation Defects in Complex Wiring Systems", SAND2005-1987, March 2005.
- [13] C. Olson, G. Rochau, M. K. Matzen, S. Slutz, C. Morrow, R. Olson, M. Cuneo, D. Hanson, G. Bennett, T. Sanford, J. Bailey, W. Stygar, R. Vesey, T. Mehlhorn, K. Struve, M. Mazarakis, M. Savage, T. Pointon, M. Kiefer, S. Rosenthal, K. Cochrane, L. Schneider, S. Glover, K. Reed, D. Schroen, S. Rodriguez, C. Farnum, M. Modesto, D. Oscar, L. Chhabildas, J. Boyes, V. Vigil, R. Keith, M. Turgeon, B. Cipiti, E. Lindgren, V. Dandini, H. Tran, D. Smith, D. McDaniel, J. Quintenz, J. P. VanDevender, W. Gauster, L. Shephard, M. Walck, T. Renk, T. Tanaka, B. Smith, K. Trancosa, M. Ulrickson, W. Meier, J. Latkowski, R. Moir, R. Schmitt, S. Reyes, R. Abbott, R. Peterson, G. Pollock, P. Ottinger, J. Schumer, P. Peterson, D. Kammer, G. Kulcinski, L. El-Guebaly, G. Moses, I. Sviatoslavsky, M. Sawan, M. Anderson, R. Bonazza, J. Oakley, P. Meekunasombat, J. De Groot, N. Jensen, M. Abdou, A. Ying, P. Calderoni, N. Morley, S. Abdel-Khalik, C. Dillon, C. Lascar, D. Sadowski, R. Curry, K. McDonald, M. Barkey, W. Szaroletta, R. Gallix, N. Alexander, W. Rickman, C. Charman, H. Shatoff, D. Welch, D. Rose, P. Panchuk, D. Louie, S. Dean, A. Kim, S. Nedoseev, E. Grabovsky, A. Kingsep, V. Smirnov, "Z-Pinch IFE Program Final Report for FY04", SAND report for Sandia National Laboratories, SAND 2005-2742, April 2005, 856 pages.
- [14] S. F. Glover, F. J. Zutavern, K. W. Reed, M. E. Swalby, A. Mar, M. L. Horry, F.E. White, "Fiber-Optic Controlled PCSS Triggers for High-Voltage Pulsed Power Switches", SAND report for Sandia National Laboratories, SAND2006-0934, February 2006.
- [15] R.K. Howard, S.F. Glover, G.E. Pena, M.B. Higgins, L.X. Schneider, and T.R. Lockner," Final Report on Development of Pulse Arrested Spark Discharge (PASD) for Aging Aircraft Wiring Application," Sand report for the Federal Aviation Administration and Sandia National Laboratories, SAND2005-2638, September, 2006, 38 pages.
- [16] S.F. Glover, J.E. Martin, D.H. Read, K.W. Reed, J.M. Rudys, L.X. Schneider, "Phase changing Dielectrics for High Performance Pulsed Power Switches", SAND report for Sandia National Laboratories, SAND2007-5886, September 2007. 9 pages.
- [17] S.F. Glover, and F. J. Zutavern, "Fiber-Optically Controlled PCSS Based Trigger Generators for Pulsed Power Switches," SAND report for Sandia National Laboratories, SAND2007-6625, January 2008, 51 pages.

- [18] S.F. Glover, F. J. Zutavern, M.E. Swalby, M.J. Cich, G. Loubriel, and A. Mar, “Neutron-Irradiated GaAs for DC Charged PCSS Based Trigger Systems,” SAND report for Sandia National Laboratories, SAND2008-7217, November 2008, 93 pages.
- [19] J. R. Woodworth, J. A. Alexander, F. R. Gruner, W.A. Stygar, M. J. Harden, J. R. Blickem, G. J. Denison, F. E. White, L. M. Lucero, H. D. Anderson, L. F. Bennett, S. F. Glover, D. Van DeValde, “A Study of Low-Inductance Gas Switches for Linear Transformer Drivers”, SAND report for Sandia National Laboratories, SAND2008-7783, 37 pages.
- [20] Ronald C. Pate, Steven F. Glover, Susan M. Brozik, Ronen Polsky, David R. Wheeler, Justin R. Ford, Jason E. Strauch, Aaron Gin, David B. Burckel, Paul Davids, Anthony L. Lentine, David W. Peters, Peter T. Rakich, Albert G. Baca, Christopher Nordquist, Jason Verley, Gregory N. Nielson, Murat Okandan, Alex Robinson, Christopher A. Apblett, Cody M. Washburn, F. Michael Hosking, Robert K. Grubbs, Karen Waldrip, Thomas D. Hund, Adrian R. Chavez, Jeffrey S. Nelson, Joseph A. Henfling, Michael J. Baca, Jason E. Stamp, Mark A. Rumsey, Stanley Atcitty, and Mark A. Smith, “Microsystems Technology Opportunities for Next-Generation Renewable Energy Systems and the Intelligent Electric Power Grid”, SAND report for Sandia National Laboratories, SAND2009-6099, September 2009, 81 pages.
- [21] K. W. Reed, J. M. Rudys, Gary Pena & S. F. Glover, G. L. Brennecka, and B. A. Tuttle, “Ferroelectric Opening Switches for Large-Scale Pulsed Power Drivers”, SAND report for Sandia National Laboratories, SAND2009-7527, September 2009, 45 pages.
- [22] Anthony Lentine, Steve Glover, David Wilson, Steven Goldsmith, Stanley Atcitty, Albert Baca, Jason Stamp, “Innovative electric power grid architecture for high penetration distributed renewable energy generation (LDRD) (Sandia Proprietary Information/Patent Caution)”, SAND report for Sandia National Laboratories, SAND2010-8217, November 2010.
- [23] Shannon V. Spires, Juan J. Torres, Steven F. Glover, Steven Y. Goldsmith, Forest E. White, Justin R. Ford, Sigifredo Gonzalez, Gary Byers, “Intelligent Power Controllers for Self-Organizing Microgrids: Final Report for LDRD Project #117798”, SAND report for Sandia National Laboratories, SAND2011-1752, March 2011, 134 pages.