

PUBLICATIONS AND PAPERS:

A. REFEREED JOURNAL PUBLICATIONS

1. R. J. Soukup and D. E. Speliotis, "Voltage-Current Characteristics for Electrical Conduction Through Thin MgO Films," J. Appl. Phys. **41**, 3229-3236 (1970).
2. R. J. Soukup, "Observations of Negative Resistance in Ti-TiO₂-Au Diodes," J. Appl. Phys. **43**, 3431-3435 (1972).
3. R. J. Soukup, "Schottky Emission in Thin-Film Sandwich Structures," J. Appl. Phys. **46**, 463-464 (1975).
4. R. J. Soukup, "High-Voltage Vertical Multijunction Solar Cell," J. Appl. Phys. **47**, 555-559 (1976).
5. R. J. Soukup, "Capacitance of a Hyperabrupt Tuning Varactor Diode," IEEE Trans. Electron Dev. **ED-23**, 361-363 (1976).
6. R. J. Soukup, "The Lensed High-Voltage Vertical Multijunction Solar Cell," J. Appl. Phys. **48**, 440-441 (1977).
7. R. J. Soukup, "Reply to 'New Analysis of a High Voltage Vertical Multijunction Solar Cell'," J. Appl. Phys. **48**, 445 (1977).
8. D. M. Mosher, R. E. Bose and R. J. Soukup, "The Advantages of Sun Tracking for Planar Silicon Solar Cells," Solar Energy **19**, 91-97 (1977).
9. R. J. Soukup, "Emission from an Oxide Coated Cathode as a Function of Oxide Thickness," J. Appl. Phys. **48**, 1098-1100 (1977).
10. R. J. Soukup and L. A. Akers, "Comparative Calculations for Thin-Film and Bulk Single-Crystal Schottky Barrier Solar Cells," J. Appl. Phys. **49**, 4031-4034 (1978).
11. R. J. Soukup, D. M. Mosher and A. K. Kulkarni, "The Through-Film Electrical Properties of Sputtered GaAs Films with Aluminum Contacts," Thin Solid Films **52**, 237-250 (1978).
12. R. J. Soukup, A. K. Kulkarni and D. M. Mosher, "Electrical Properties of Sputtered Epitaxial Films of GaAs," J. Vac. Sci. Technol. **16**, 208-211 (1979).
13. B. L. Krauter and R. J. Soukup, "An Analytical Model of a Backwall MIS Schottky Barrier Solar Cell," J. Appl. Phys. **51**, 2914-2919 (1980).

14. A. K. Kulkarni and R. J. Soukup, "The Effect of Substrate-Epitaxial Interface on the Capacitance-Voltage Characteristics of Schottky Barriers Formed On Sputtered Films of GaAs," *J. Vac. Sci. Technol.* **20**, 807-810 (1982).
15. R. J. Soukup and G. P. Bartunek, "Grain Boundary Recombination Analysis of GaAs Schottky Barrier Solar Cells," *J. Appl. Phys.* **53**, 4428-4434 (1982).
16. D. M. Mosher and R. J. Soukup, "The Fabrication of Both n-type and p-type GaAs Thin Films Deposited by Triode Sputtering," *Thin Solid Films* **98**, 215-228 (1982).
17. R. J. Soukup and D. R. Slocum, "A Model for the Collection of Minority Carriers Generated in the Depletion Region of a Schottky Barrier Solar Cell," *Solar Cells* **7**, 297-310 (1982-1983).
18. R. J. Soukup, "A Model for the Measurement of Minority Carrier Diffusion Lengths Using a Scanning Electron Microscope in the Electron Beam Induced Current Mode," *Appl. Phys. Comm.* **2**, 143-156 (1982-1983).
19. R. J. Soukup and J. P. Ekstrand, "Electron-Beam-Induced Currents Collected by a p-n Junction of Finite Junction Depth," *J. Appl. Phys.* **57**, 5386-5395 (1985).
20. R. J. Soukup, G. P. Bartunek and D. R. Lipps, "Limitations of Built-in Electric Field Enhancement of Minority Carrier Current Collection in GaAs Backwall Schottky Barrier Solar Cells," *Solar Cells* **18**, 139-151 (1986).
21. T. E. Tiwald, R. J. Soukup, E. P. Moss and S. D. Rankin, "Automated Circuit Analysis as Applied to MIS (MIM) Structures," *Microcomputer Applications* **6**, 11-15 (1987).
22. R. J. Soukup and T. E. Tiwald, "Complex Impedance vs. Frequency Analysis of Al:SiC:Al Metal-Insulator-Metal Structures," *J. Vac. Sci. Technol.* **A6**, 1759-1762 (1988).
23. R. J. Soukup and J. R. Sullivan, "Circuit Modeling of GaAs:a-SiC Interfaces," *J. Vac. Sci. Technol.* **A7**, 753-757 (1989).
24. J. R. Sullivan and R. J. Soukup, "Thin SiC Films as GaAs Field Effect Transistor Insulators," *J. Vac. Sci. Technol.* **A8**, 3019-3025 (1990).

25. R. J. Soukup, "Pohled Jednoho Američana na Českou Fyziku," Czech J. Physics **41**, 537-541 (1991). (invited)
26. R. J. Soukup and K. J. Kantor, "Hydrogenated Amorphous Silicon Thin Films Deposited by Triode Assisted Reactive Sputtering," J. Vac. Sci. Technol. **A10**, 1728-1733 (1992).
27. A. John Boye, P. Frazer Williams and Rodney J. Soukup, "Using Spread Sheets to Teach Problem Solving in a First Year Class," IEEE Trans. Education **36**, 68-71 (1993).
28. M. Čižka, L. Bárdoš, M. Tichý, L. Soukup, L. Jastrabík, H. Baránková, R. J. Soukup and J. Toušek, "Simple Physical Model of Generation of the Low-Pressure Radio Frequency Supersonic Plasma Jet," Contrib. Plasma Phys. **34**, 749-764 (1994).
29. M. Tichý, M. Čižka, L. Bárdoš, L. Soukup, L. Jastrabík, K. Kapoun, J. Toušek, Z. Mazanec and R. J. Soukup, "A Study of the Gas Flow in the RF Low-Pressure Supersonic Jet Plasma Chemical System," Contrib. Plasma Phys. **34**, 765-772 (1994).
30. R. J. Soukup, "Current Progress in Thin Film Photovoltaics," Jemná Mechanika a Optika **1**, 152-155 (1995). (invited)
31. L. Soukup, V. Pečinka, L. Jastrabík, M. Čižka, P. Pokorný, R. J. Soukup, M. Novák, and J. Zemek, "Germanium Nitride Layers Prepared by Supersonic RF Plasma Jet," Surface and Coatings Technol. **78**, 280-283 (1996).
32. D. R. Konz and R. J. Soukup, "Quality Hydrogenated Amorphous Silicon Deposited by Triode Reactive Sputtering," Solar Energy Materials and Solar Cells **56**, 175-182 (1999).
33. G. Pribil, Z. Hubička, R. J. Soukup, and N. J. Ianno, "Deposition of Electronic Quality Amorphous Silicon, a-Si:H, Thin Films by a Hollow Cathode Plasma-Jet Reactive Sputtering System," J. Vac. Sci. Technol. **A19**, 1571-1576 (2001).
34. Z. Hubička, G. Pribil, R. J. Soukup, and N. J. Ianno, "Investigations of the RF and DC Hollow Cathode Plasma-Jet Sputtering Systems for the Deposition of Amorphous Silicon Thin Films," Surface and Coatings Technol. **160**, 114-123 (2002).
35. R. J. Soukup, N. J. Ianno, G. Pribil and Z. Hubička, "Deposition of High Quality Silicon, Germanium and Silicon-Germanium Thin Films by a Hollow Cathode Reactive Sputtering System," Surface and Coatings Technol. **177-178**, 676-681 (2004).

36. R. J. Soukup, N. J. Ianno, S. A. Darveau, and C. L. Exstrom, "Thin Films of a-SiGe:H with Device Quality Properties Prepared by a Novel Hollow Cathode Deposition Technique," *Solar Energy Materials and Solar Cells* **87**, 87-98 (2005).
37. J. S. Schrader, J. L. Huguenin-Love, R. J. Soukup, N. J. Ianno, C. L. Exstrom, S. A. Darveau, R. N. Udey, and V. L. Dalal, "Thin Films of GeC Deposited Using a Unique Hollow Cathode Sputtering Technique," *Solar Energy Materials and Solar Cells* **90**, 2338-2345 (2006).
38. J. L. Huguenin-Love, R. J. Soukup, N. J. Ianno, J. S. Schrader, D. W. Thompson, and V. L. Dalal, "Optical and Crystallographic Analysis of Thin Films of GeC Deposited Using a Unique Hollow Cathode Sputtering Technique," *Materials Science and Semiconductor Processing* **9**, 759-763 (2006).
39. R. J. Soukup, N. J. Ianno, and J. L. Huguenin-Love, "Analysis of Semiconductor Thin Films Deposited using a Hollow Cathode Plasma Torch," to be published in *Solar Energy Materials and Solar Cells*.
40. N. J. Ianno, R. J. Soukup, N. Lauer, S. G. Hirsch, C. Hubbard, J. D. Demaree, and M. W. Cole, "Dual rf Hollow Cathode Plasma Jet Deposition of $Ba_xSr_{1-x}TiO_3$," to be published in *Integrated Ferroelectrics*.

B. REFEREED CONFERENCE PROCEEDINGS

1. R. J. Soukup and L. A. Collingwood, "Failure Mechanisms in Pulsed RF Power Transistors," *Proc. 13th IEEE Reliability Physics Symp.* (1975), pp. 174-181.
2. B. L. Krauter and R. J. Soukup, "An Analytical Model of a Backwall Schottky-Barrier Solar Cell," *Energy and Technology* (1979), pp. 1-6.
3. J. A. Woollam, A. A. Khan, A. M. Herman and R. J. Soukup, "Diffusion Length Measurement in Solar Cells - An Analysis and Comparison of Techniques," *Proc. Space Photovoltaic Res. and Tech.* (1982), pp. 45-56.
4. R. J. Soukup, T. E. Tiwald, E. P. Moss and D. R. Lipps, "Automated Circuit Analysis as Applied to MIS (MIM) Structures," *Proc. ISMM Symp., Software and Hardware Applications of Microcomputers* (1986).
5. R. J. Soukup and T. E. Tiwald, "Automated Circuit Analysis as Applied to MIM Structures," *Proc. 29th Midwest Symp. Circuits and Systems* (1986), pp. 163-167.
6. R. J. Soukup and J. R. Sullivan, "SiC as a Potential FET Gate Insulator," *Proc. Amorphous and Crystalline Silicon Carbide and Related Materials II* (1989), pp. 191-197.

7. A. J. Boye, R. J. Soukup and P. F. Williams, "Teaching Engineering as the Science of Solving Word Problems," 1991 ASEE Annual Conference Proc. (1991), pp. 1267-1271.
8. A. J. Boye, R. J. Soukup and P. F. Williams, "Teaching Engineering as the Science of Solving Word Problems-Part II," 1992 ASEE Annual Conference Proc. (1992), pp. 1534-1536.
9. Rodney J. Soukup and Jeffrey D. Brooks, "The Blend of Symbolic and Numeric Simulation in Introductory Electrical Engineering," Proc. Int. Conf. Simulation Engr. Edu., Simulation Series **25**, 3, (1993), pp. 101-105.
10. A. J. Boye and R. J. Soukup, "Combining Structure and Design in an Electrical Engineering Laboratory," 1994 ASEE Annual Conference Proc. (1994), pp. 408-412.
11. Rodney J. Soukup and Ladislav Soukup, "A Collaborative Research and Educational Effort between the Department of Electrical Engineering at the University of Nebraska and the Academy of Sciences of the Czech Republic," 1994 ASEE Annual Conference Proc. (1994), pp. 2015-2018.
12. Randy T. Dorn and R. J. Soukup, "Solution of the Solar Cell Transport Equations using MAPLE," Proc. of the MAPLE Summer Workshop and Symposium (1994), pp. 90-96.
13. R. J. Soukup and D. W. Konz, "A Complete Simulation of Solar Cells using Symbolic Programming," Proc. Int. Conf. Simulation Engr. Edu., Simulation Series **27**, 2, (1995), pp. 33-35.
14. R. J. Soukup and Randy Dorn, "Teaching Simulation of Semiconductor Devices using Symbolic Programming," Proc. Int. Conf. Simulation Engr. Edu. (1996), pp. 98-103.
15. R. J. Soukup and D. W. Konz, "Symbolic Programming used to Teach Electromagnetic Fields Simulation," Proc. Int. Conf. Simulation Engr. Edu. (1997), pp. 123-128.
16. R. J. Soukup, "Symbolic Simulation of Continuous Systems and Signals," Proc. Int. Conf. Simulation and Multimedia Engr. Edu. (1998), pp. 181-186.
17. R. J. Soukup, "The Use of MAPLE and Partial Differential Equations in the Simulation of Engineering Systems," Proc. Int. Conf. Simulation and Multimedia Engr. Edu. (1999), pp. 43-48.

18. R. J. Soukup, "Guidance for New Faculty," Proc. ASEE Annual Conference 1999, Charlotte, NC, CD ROM.
19. A. J. Boye and R. J. Soukup, "Results of Combining Structure and Design in Electrical Engineering Laboratories," Proc. Int. Conf. Engr. Edu. 1999, Ostrava, Czech Republic, CD ROM.
20. R. J. Soukup and L. Soukup, "An Example of a Collaborative Research/Educational Program," Proc. Int. Conf. Engr. Edu. 1999, Ostrava, Czech Republic, CD ROM.
21. R. J. Soukup, "Partial Differential Equations Solved Symbolically with Help from the User," Proc. Int. Conf. Engr. Edu. 1999, Ostrava, Czech Republic, CD ROM.
22. R. J. Soukup, "Applications of Complex Variables to Electrical Engineering with the Help of Symbolic Programming," Proc. Int. Conf. Simulation and Multimedia Engr. Edu. (2000), pp. 176-181.
23. R. J. Soukup, "Engineering According to MAPLE," Proc. ICEE 2001.
24. R. J. Soukup, "Using MAPLE to Model Engineering Systems in Cylindrical and Spherical Coordinates," Proc. Int. Conf. Simulation and Multimedia Engr. Edu. (2002), pp 17-22.
25. R. J. Soukup, "Class Projects in Analytical Techniques for Electrical Engineering with the use of MAPLE," Proc. Int. Conf. Simulation and Multimedia Engr. Edu. (2003), pp 43-48.
26. Rodney J. Soukup, Natale Ianno, Scott Darveau, and Christopher L. Exstrom, "Optical and Electronic Characterization of a-SiGe:H Thin Films Prepared by a Novel Hollow Cathode Deposition Technique," Mat. Res. Soc. Symp. Proc. **808** (2004), pp. A9.4.1-A9.4.6.
27. R. J. Soukup, N. J. Ianno, J. S. Schrader and V. L. Dalal, "Polycrystalline GeC Thin Films Deposited Using a Unique Hollow Cathode Sputtering Technique," Mat. Res. Soc. Symp. Proc. **862** (2005), pp. A20.2.1-A20.2.6.
28. N. J. Ianno, R. J. Soukup, Z. Hubička, J. Olejník, and H. Ůichová, "RF Hollow Cathode Plasma Jet Deposition of $Ba_xSr_{1-x}TiO_3$ Films," Mat. Res. Soc. Symp. Proc. **869** (2005), pp. D2.4.2-D2.4.6.
29. J. L. Huguenin-Love, R. J. Soukup, J. S. Schrader, N. J. Ianno, and V. L. Dalal, "Thin Films of GeC Deposited Using a Unique Hollow Cathode Sputtering Technique," Mat. Res. Soc. Symp. Proc. **910** (2006), pp. 0910-A07-03.

30. J. L. Huguenin-Love, R. J. Soukup, N. J. Ianno, J. S. Schrader, and V. L. Dalal, "The Properties of Ge-C Thin Films Deposited using Dual Hollow Cathodes," Proc. 2006 IEEE 4th World Conference on Photovoltaic Energy Conversion (2006), WWW.
31. N. J. Ianno, R. J. Soukup, T. Santero, C. A. Kamler, J. L. Huguenin-Love, C.L. Exstrom, J. Olejník, and S.A. Darveau, "Cu_xB_{1-x}Se₂ (CIBS) Absorber Materials," submitted for publication in Mat. Res. Soc. Symp. Proc.

C. INVITED CONFERENCE PRESENTATIONS

1. R. J. Soukup, "Current Progress in Thin Film Photovoltaics," presented at the International Conference on Advanced Materials and Technologies in Plzeň, Czech Republic in June 1995.
2. N. J. Ianno, Z. Hubička, and R. J. Soukup, "RF Hollow Cathode Plasma Jet Deposition of Ba_xSr_{1-x}TiO₃," presented at the XIII International Materials Research Congress, Cancun, Mexico, August 24, 2004.
3. N. J. Ianno, R. J. Soukup, and N. Lauer, "Dual rf Hollow Cathode Plasma Jet Deposition of Ba_xSr_{1-x}TiO₃," presented at the XV International Materials Research Congress, Cancun, Mexico, August 2006.
4. R. J. Soukup, N. J. Ianno, J. L. Huguenin-Love, "Deposition and Analysis of Semiconductor Thin Films using a Hollow Cathode Plasma Torch," presented at the XV International Materials Research Congress, Cancun, Mexico, August 2006.

D. ADDITIONAL CONFERENCE PRESENTATIONS

1. R. J. Soukup, A. K. Kulkarni and D. M. Mosher, "The Electrical Properties of Sputtered Epitaxial Films of GaAs," 25th National Symp. American Vacuum Society, San Francisco, CA, November 1978.
2. R. J. Soukup, D. M. Mosher and A. K. Kulkarni, "The Electrical Properties of Sputtered GaAs Thin Films," 8th Annual Symp. on Applied Vacuum Science and Technology, Tampa, FL, February 1979.
3. R. J. Soukup and A. K. Kulkarni, "The Effect of Substrate-Epitaxial Interface on the Capacitance-Voltage Characteristics of Schottky Barriers Formed On Sputtered Films of Gallium Arsenide," 28th Nat. Symp. American Vacuum Soc., Anaheim, CA, November 1981.

4. G. P. Bartunek, R. J. Soukup and D. R. Lipps, "Limitations of Built-in Electric Field Enhancement of Minority Carrier Current Collection in GaAs Backwall Schottky Barrier Solar Cells," 32nd Midwest Solid State Conference, Lincoln, NE, November 1984.
5. T. E. Tiwald and R. J. Soukup, "Complex Impedance vs. Frequency Analysis of Al:SiC:Al Metal-Insulator-Metal Structures," 34th Nat. Symp. American Vacuum Society, Anaheim, CA, November 1987.
6. R. J. Soukup and J. R. Sullivan, "Circuit Modeling of GaAs:a-SiC Interfaces," 35th Nat. Symp. American Vacuum Society, Atlanta, GA, October 1988.
7. Panel member, Faculty Load and Compensation, National Electrical Engineering Department Heads Association (NEEDHA) 5th Annual Meeting, San Diego, CA, March 1989 (Discussion leader on "Salary Release Dollars" and on "Ethics in the Curriculum.")
8. J. R. Sullivan and R. J. Soukup, "Thin SiC Films as GaAs FET Insulators," 36th Nat. Symp. American Vacuum Society, Boston, MA, October 1989.
9. K. J. Kantor and R. J. Soukup, "Characterization of a-Si:H Films Prepared by a Triode DC-Sputtering Technique," 37th Nat. Symp. American Vacuum Society, Toronto, Canada, October 1990.
10. K. J. Kantor and R. J. Soukup, "Hydrogenated Amorphous Silicon Thin Films Deposited by Triode Assisted Reactive Sputtering," 38th Nat. Symp. American Vacuum Society, Seattle, WA, November 1991.
11. D. C. Baumert and R. J. Soukup, "High Quality Sputtered Amorphous Silicon Thin Films," 39th Nat. Symp. Am. Vacuum Soc., Chicago, IL, Nov. 1992.
12. R. J. Soukup, "Promotion and Tenure in Today's Environment," 1996 ASEE National Conference, Washington, DC, June 1996.
13. R. J. Soukup, "Faculty Evaluation (Approaches and Processes for Evaluating Faculty), session organizer and main speaker, NEEDHA 13th Annual Meeting, Orlando, FL, 1997.
14. R. J. Soukup, "Guidance for New Faculty," presented at the 1998 ASEE National Conference, Charlotte, NC, June 1998.

15. G. Pribil, Z. Hubička, R. J. Soukup, and N. J. Ianno, "Deposition of Device Quality Amorphous Silicon, a-Si:H, Thin Films by the Hollow Cathode Plasma-Jet Sputtering System," presented at the 47th International Symposium of the American Vacuum Society, Boston, MA, 2000.
16. G. Pribil, R. J. Soukup, N. J. Ianno, and Z. Hubička, "Characterization of Hydrogenated Amorphous Germanium, a-Ge:H, Thin Films Deposited by a Low Pressure Hollow Cathode Plasma-jet Reactive Sputtering System," presented at the 48th International Symposium of the American Vacuum Society, San Francisco, CA, 2001.
17. N. J. Ianno, R. J. Soukup, G. Pribil and Z. Hubička, "Deposition of High Quality Silicon, Germanium and Silicon-Germanium Thin Films by a Hollow Cathode Reactive Sputtering System," presented at the International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, 2003.
18. Rodney J. Soukup, Natale Ianno, Scott Darveau, and Christopher L. Exstrom, "Thin Films of a-SiGe:H with Device Quality Properties Prepared by a Novel Hollow cathode Deposition Technique", presented at the International Conference on the Physics, Chemistry and Engineering of Solar Cells (SCELL2004), Badajoz, Spain, 2004.
19. R. J. Soukup, N. J. Ianno, and V. L. Dalal, "Thin Films of GeC Deposited Using a Unique Hollow Cathode Sputtering Technique", presented at the 206th Meeting of The Electrochemical Society in Honolulu, HI October 5, 2004.
20. R. J. Soukup, N. J. Ianno, J. S. Schrader and V. L. Dalal, "Ge_C Thin Films Deposited using Dual Hollow Cathodes," presented at the XIV Int. Mtrls. Res. Congress., August 22, 2005, Cancun, Mexico.
21. J. L. Huguenin-Love, R. J. Soukup, N. J. Ianno, J. S. Schrader, D. W. Thompson, and V. L. Dalal, "Optical and Crystallographic Analysis of Thin Films of GeC Deposited Using a Unique Hollow Cathode Sputtering Technique," presented at the European Materials Research Society 2006 Spring Meeting in Nice, France, June 1, 2006.
22. N. J. Ianno, R. J. Soukup, N. Lauer, Z. Hubička, and J. Olejník, "Dual rf Hollow Cathode Plasma Jet Deposition of $Ba_xSr_{1-x}TiO_3$," presented at the 2nd International Workshop on Physics and Technology of Thin Films, Prague, Czech Republic, June , 2006.
23. J. L. Huguenin-Love, R. J. Soukup, N. J. Ianno, and D. W. Thompson, "Ellipsometric Analysis of Ge_xC_{1-x} Thin Films Deposited by Hollow

Cathode Sputtering,” presented at the 2nd International Workshop on Physics and Technology of Thin Films, Prague, Czech Republic, June, 2006.

24. N. J. Ianno, T. Santero, and R. J. Soukup, “Preliminary Study of $\text{CuIn}_x\text{B}_{1-x}\text{Se}_2$ Absorber Materials,” presented at the AVS 53rd International Symposium and Exhibition, San Francisco, CA, November 2006.
25. Scott A. Darveau, Jiří Olejník, Christopher L. Exstrom, Rodney J. Soukup, and Natale Ianno, “Toward fabrication and characterization of new photovoltaic materials: $\text{CuIn}_x\text{B}_{1-x}\text{Se}_2$ (CIBS) and CuBSe_2 (CBS),” presented at the 233rd National Meeting and Exposition of the American Chemical Society, Chicago, IL, March 2007.
26. R. J. Soukup, N. J. Ianno, C. A. Kamler, J. L. Huguenin-Love, J. Olejník, S. A. Darveau, and C. L. Exstrom, “Thin Films Formed by Selenization of $\text{CuIn}_x\text{B}_{1-x}$ Precursors in Se Vapor,” submitted for presentation at the XVI Int. Mtrls. Res. Congress., August 2007, Cancun, Mexico.