

Thomas E. Zirkle

Chief Technology Officer

MicroPower Global

Star One

3055 Hunter Road, Box 2

San Marcos, TX 78666

Phone: (512) 245 3647

FAX: (512) 245-3675

E-mail: tom@micropower-global.com

PROFESSIONAL PREPARATION

Arizona State University, AZ	Electrical Engineering	PhD
Arizona State University, AZ	Electrical Engineering	MS
Walla Walla College, WA	Electrical Engineering	BS

PROFESSIONAL EXPERIENCE

2009 – Present	Chief Technology Officer, MicroPower Global, San Marcos TX
2000 – 2009	Manager, Fellow of the Technical Staff, Freescale Semiconductor, Austin TX
1990 – 2000	Senior Scientist, Motorola, Inc., Austin TX

FIVE PUBLICATIONS CLOSELY RELATED TO THE PROJECT

1. **T. E. Zirkle**, C. I. Drowley, W. G. Cowden, and T. S. Cale, "PETEOS Simulation Using EVOLVE, a Deposition Simulator," *Thin Solid Films*, vol. 220, pp. 45-49, Nov. 1992. (also in *Metallurgical Coatings and Thin Films in 1992*, Vol. II, B. Sartwell, D. McIntyre, S. Hoffman, eds., Elsevier, 1992, pp. 45-49.)
2. L. Borucki, **T. Zirkle**, J. Kirchgessner, P. Drennan, "Half micron BiCMOS device and process modeling," in *Proc. of 1993 IEEE BCTM*, pp. 97-103, 1993.
3. P. A. Blakey, **T. E. Zirkle**, "An Industrial Perspective on Semiconductor Technology Modeling," in *Proc. IMA Summer Program: Semiconductors*, Springer-Verlag. vol. 59, pp. 75-88, 1994.
4. H. Park, M. Bafleur, L. Borucki, C. Sudhama, **T. Zirkle**, A. Wild, "Systematic calibration of process simulators for predictive TCAD," in *International Conf. on Simulation of Semiconductor Processes and Devices*, pp. 273-275, 1997.
5. M. Bafleur, T. Dinh, H. Park, R. Thoma, **T. Zirkle** and A. Wild, "Concurrent Process, Device and Integrated Circuit Development by Predictive Engineering for Smart Power Technologies," in *Proceedings of the 1998 International Conference on Modeling and Simulation of Microsystems*, pp. 414-419, 1998

FIVE OTHER SIGNIFICANT PUBLICATIONS

1. **T. E. Zirkle**, C. E. Backus, "Superlinearity of the Short Circuit Current of Low Resistivity Concentrator Solar Cells," *IEEE Trans. Elect. Dev.*, vol. ED-36, pp. 1286-1294, July 1989.

2. **T. E. Zirkle**, N. S. Kang, D. K. Schroder, R. J. Roedel, "Spectrally-Resolved, Temperature-Dependent Photoconductivity Characterization of Gettering in Semi-Insulating GaAs," in *Proc. Fourteenth State-of-the-Art Program in Compound Semiconductors*, (Washington, D.C.), vol. 91-13 of the Electrochem. Society, pp. 282-294, May 1991.
3. **T. E. Zirkle**, S. R. Wilson, S. Sundaram, T. S. Cale, and G. B. Raupp, "Sequential Deposition of SiO₂ and Poly-Si in Isolation Trenches, " presented at the 39th National Symposium of the American Vacuum Society, (Chicago, Illinois), Nov. 1992. (Extended abstract appears in Final Program, pp.259.). Also in *J. Vac. Sci. Technol. A*, vol. 11, no. 4, pp. 905-910, Jul/Aug 1993.
4. J. Kirchgessner, S. Bigelow, F. K. Chai, R. Cross, P. Dahl, A. Duvallet, B. Gardner, M. Griswold, D. Hammock, J. Heddleson, S. Hildreth, A. Irudayam, C. Leshner, T. Meixner, P. Meng, M. Menner, J. McGinley, D. Monk, D. Morgan, H. Rueda, M. Huang, **T. Zirkle**, V. Ilderem, "A 0.18um SiGe:C RF BiCMOS technology for wireless and gigabit optical communication systems," *Proceedings of the 2001 IEEE BCTM*, pp. 151-154, Sept. 2001
5. J. Oh, J. C. Campbell, S. G. Thomas, S. Bharatan, R. Thoma, C. Jasper, R. E. Jones, **T. E. Zirkle**, "Interdigitated Ge p-i-n photodetectors fabricated on a Si substrate using graded SiGe buffer layers," *IEEE J. of Quantum Electronics*, vol. 38, no. 9, pp. 1238-1241, Sep 2002.

CURRENT ACTIVITIES

Dr. Zirkle's current activity is aimed at bringing a high performance PbTe based thermoelectric device through final development to the commercial market. The semiconductor device is composed of the deposition of designed layers on a bulk substrate. Device optimization is presently composed of careful experimental studies. Further materials development involve high temperature contacts and interconnect structures capable of sustaining high temperatures over long lifetimes. Coupling the materials development with a predictive simulation capability is expected to accelerate development as has been observed in numerous other related semiconductor processes.