RESUME Terry M. Tritt

PERSONAL DATA

Full Professor with Tenure
Department of Physics & Astronomy
103 Kinard Laboratory
Clemson University
Clemson, SC 29634-0978
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EDUCATION

Ph.D. Physics August 1985 Clemson University

B.A. Physics December 1980 Clemson University
Graduated Cum Laude with GPR = 3.67 (3.67/4.0)

A.S. Science May 1979 Anderson College (Anderson, SC)
Graduated Magna Cum Laude with GPR = 3.93 (3.93/4.0)

PROFESSIONAL EXPERIENCE

Full Professor with Tenure, Department of Physics
Clemson University, August 2000 – Present

Associate Professor, Department of Physics
Clemson University, August 1999 – 2000

Assistant Professor, Department of Physics
Clemson University, August 1996 – 1999

Adjunct Professor, Department of Physics
Clemson University, 1991 – 1996

Research Physicist, Naval Research Lab (Code 6341)
Washington D.C., September 1989 – August 1996
(Exiting Grade: High GS-13)

PROFESSIONAL EXPERIENCE (cont.)

Research Associate, Naval Research Lab (Code 6341)
Office of Naval Technology/American Society for Engineering Education
Washington, D.C., August 1987 – August 1989

National Academy of Sciences Research Associate
Naval Research Lab (Code 6341)
Washington, D.C., July 1985 – July 1987

Graduate Student, January 1981 – July 1985
Graduate Teaching Assistant, 1981 – Spring 1985
Research Assistant, 1982 – 1984
Clemson University

Residence Hall Supervisor and Counselor
Anderson College (Anderson, SC), 1978 – 1985

PROFESSIONAL SOCIETY MEMBERSHIPS

American Physical Society
Session Chairman 1995, 1996, 2001, 2002, 2003, 2004
Focus Session Organizer 1996, 2001, 2002, 2003, 2004

Materials Research Society
Symposium Chairman and Organizer 1997, 1998, 2000
Editor, MRS, Volumes **478** (1997), **545** (1998) & **626** (2000)
Session Chairman 1997, 1998, 2000, 2001, 2003, 2005

International Thermoelectrics Society
Conference Chairman and Organizer 2005
Goldsmid Award Chairman 2005
ICT Program Committee 1999
ICT Exhibits Chairman 1999
Governing Board Member 1999-2001, 2001-2004, 2004-2007
International Advisory Board, ICT 1997, 2001, 2002, 2004

Clemson University Research Council Committee (2000 - 2002)

Sigma Pi Sigma
Former Chapter President

Phi Kappa Phi

Sigma Xi

PROFESSIONAL ACTIVITIES

International Thermoelectrics Society
Conference Chairman and Organizer 2005 (≈ 300 attendees)
Clemson University, Clemson, SC, Summer 2005

International Thermoelectrics Society
Program Committee (≈ 500 members)
Elected to Governing Board 1999 – 2002, 2002 – 2005

Materials Research Society, Symposium Z (Thermoelectric Materials)
Conference Organizer and Chairman
Session Chairman
Budget Coordinator and Fund Raising
Boston, MA, Spring 2000

International Conference on Thermoelectrics Conference
Program Committee
Exhibits Chairman
Baltimore, MD, 1999

American Physical Society, Division of Condensed Matter Physics (DCMP)
Election Committee Teller for DCMP Elections 1998

Materials Research Society, Symposium Z (Thermoelectric Materials)
Conference Organizer and Chairman
Session Chairman
Budget Coordinator and Fund Raising ($15,000)
Boston, MA, Fall 1998

Materials Research Society Symposium Proceedings Lead Editor
Volume 626
Spring 2000

Volume 545
Fall 1998

Volume 478
Spring 1997

International Conference on Thermoelectrics
Advisory Board
Session Chairman
Dresden, Germany, 1997

PROFESSIONAL ACTIVITIES (cont.)

Materials Research Society, Symposium Q (Thermoelectric Materials)
Conference Organizer and Chairman
Session Chairman
Budget Coordinator and Fund Raising ($13,000)
Boston, MA, 1997

American Physical Society (national)
Session Chairman
Session Organizer
Sorting Committee
March 1996

American Physical Society (national)
Session Chairman
Sorting Committee
March 1995

Naval Research Laboratory
Sigma Xi Outstanding Science Awards Committee
(regional) 1995

SYNERGISTIC ACTIVITIES

Conference Organizer & Chairman, Editor of Proceedings
24th International Conference on Thermoelectrics, June 19-23, 2005, Clemson University, Clemson, SC,

Board of Directors
1999-2008 International Thermoelectrics Society (≈ 500 members)

Conference Organizer and Chairman
Thermoelectric and Energy Harvesting Materials for Solid-State Power Conversion:
The 2005 Electronics Division Meeting as part of the Pacific Rim Meeting of the American Ceramic Society
September 11-16, 2005 in Maui, Hawaii.

PUBLICATIONS

Books and Monographs

Tritt, Terry M., *Electrical and Thermal Transport Measurement Techniques for Evaluation of the Figure-of Merit of Bulk Thermoelectric Materials;* CRC Handbook of Thermoelectrics, 2nd edition (2005), CRC Press, Boca Raton, Florida, M. Rowe, editor.

Tritt, Terry M., *Thermal Conductivity – Theory, Properties, and Applications,* Kluwar Academic / Plenum Publishers, New York, NY.

Tritt, Terry M. and Weston, David, *Measurement Techniques and Considerations for Determining Thermal Conductivity of Bulk Materials,* Section 2, Chapter 2.1, pp. 187-204, Thermal Conductivity, Kluwar Press, New York, NY.

A. L. Pope and **Tritt, Terry M.**, *Thermal Conductivity of Quasicrystalline Materials,* Section 3, Chapter 3.2, pp. 255-259, Thermal Conductivity, Kluwar Press, New York, NY.

Ed. **Tritt, Terry M.**, *Semimetals and Semiconductors: Recent Trends in Thermoelectric Materials Research I,* Volume 69 (2001), Academic Press, Burlington, MA.

Ed. **Tritt, Terry M.**, *Semimetals and Semiconductors: Recent Trends in Thermoelectric Materials Research II,* Volume 70 (2001), Academic Press, Burlington, MA.

Ed. **Tritt, Terry M.**, *Semimetals and Semiconductors: Recent Trends in Thermoelectric Materials Research III,* Volume 71 (2001), Academic Press, Burlington, MA.

Ed. **Tritt, Terry M.;** Kanatzidis, Mercouri G.; Lyon, Jr, Hylan B.; Mahan, Gerald D.; Nolas, George S., *Thermoelectric Materials Symposium: Proceedings of the 1997 Materials Research Society*, Volume 478, Warrendale, PA.

Ed. **Tritt, Terry M.;** Kanatzidis, Mercouri G.; Lyon, Jr, Hylan B.; Mahan, Gerald D.; Nolas, George S., *Thermoelectric Materials Symposium: Proceedings of the 1997 Materials Research Society*, Volume 545, Warrendale, PA.

Ed. **Tritt, Terry M.;** Kanatzidis, Mercouri G.; Lyon, Jr, Hylan B.; Mahan, Gerald D.; Nolas, George S., *Thermoelectric Materials Symposium: Proceedings of the 1997 Materials Research Society*, Volume 626, Warrendale, PA.

Refereed Journal Publications

J. Martin, S. Erickson and G.S. Nolas, P. Alboni, **Terry M. Tritt** and J. Yang *Structural and transport properties of $Ba_8Ga_{16}Si_xGe_{30-x}$ clathrates* Journal of Appl. Phys., submitted 2005

J. Gryko, R. F. Marzke, G. A. Lamberton,Jr., **T. M.Tritt,** M. Beekman, and G. S. Nolas, "Electron Structure and Temperature- Dependent Shifts in ^{133}Cs NMR Spectra of the Cs_8Ge_{136} Clathrate," *Physical Review B*, **71**, 115208 (2005).

Nathan D. Lowhorn, **Terry M. Tritt**, Edward E. Abbott and J. W. Kolis, "Enhancement of the Power Factor of the Transition Metal Pentatelluride $HfTe_5$ by Rare-Earth Doping," *Applied Physics Letters*, submitted (2005)

G.A. Lamberton, Jr., R. H. Tedstrom, **T.M.Tritt** and G. S. Nolas, "Thermoelectric Properties of Yb-filled Ge- Compenstated $CoSb_3$ Skutterudite Material," *Journal of Applied Physics*, **97**, 113715 (2005)

G.S. Nolas, J.L. Cohn, J. S. Dyck and C. Uher, G. A. Lamberton, Jr. and **T.M. Tritt**, "Low Temperature Transport Properties of Polycrystalline $Ba_8Ga_{16}Sn_{30}$," *Journal of Materials Research*, **19**, 3556 (2004).

D. N. Mcilroy, S. Moore, D. Zhang, B. Kempton, R. Littleton, M. Wilson, **T. M. Tritt** and C. G. Olson, "Observation of a Semimetal-Semiconductor Transition in the Intermetallic $ZrTe_5$," *Journal Of Physics: Condensed Matter - Letters*, **16**, L359 (2004).

Xing Gao, K. Uehara, D. Klug, J. Tse and **T. Tritt,** "Theoretical Studies on the Thermopower of Semiconductors and Low band-Gap Polymers," *Physical Review B*, submitted (2004).

T. Savage, S. Bhattacharya, B. Sadanadan, J. Gaillard, **T. M. Tritt,** Ya-Ping Sun, Y.Wu, S. Nayak, R.Car, N. Marzari, P. M.Ajayan and A. M. Rao, "Photo-induced Oxygen Adsorption in Carbon Nanotubes," *Journal of Condensed Matter*, **15**, 5915-5921 (2003).

B.Sadanadan, Traig Savage, J.Gaillard, S. Bhattacharya**, T. M. Tritt**, Alan Cassell, Z. Pan, Z. L. Wang and A.M.Rao, "Synthesis and Thermoelectric Power of Nitrogen Doped Carbon Nanotubes," Special issue of the *Journal of Nanoscience and Nanotechnology*, Accepted for publication (in press) (2003).

Don Liebenberg, Amy Pope, **Terry M. Tritt** and Paul Canfield, "Thermal Conductivity in large residual resistance Ratio MgB_2 Wire," *Journal of Applied Physics*, **93**, 5531 (2003).

Refereed Journal Publications (cont.)

G.S. Nolas, M. Beekman, J. Gryko G. A. Lamberton, Jr. and **Terry M. Tritt,** "Thermal conductivity of the elemental crystalline silicon clathrate Si_{136}," *Applied Physics Letters*, **82**, 910 (2003).

M. Grujicica, G. Cao, A. M. Rao, **T. M. Tritt** and S. Nayak, "UV-Light Enhanced Oxidation of Carbon Nanotubes," *Applied Surface Science*, **214**, 289 (2003).

S. Bhattacharya and **Terry M. Tritt**, Y. Xia, V. Ponnambalam S. J. Poon, and N. Thadhani, "Grain structure effects on the Lattice Thermal Conductivity of Ti-based Half-Heusler alloys," *Applied Physics Letters*, **81**, 43 (2002).

G. A. Lamberton, Jr., S. Bhattacharya, R. T. Littleton IV, M. A. Kaeser, R. H. Tedstrom, T. M. Tritt, J. Yang and G. S. Nolas, "High Figure of Merit in Eu-Filled $CoSb_3$-based Skutterudites," *Applied Physics Letters*, **80**, 598 (2002).

K. McGuire, Nathan D. Lowhorn, **T. M. Tritt** and A. M. Rao, "Raman scattering in Sb-doped Transition Metal pentatellurides $ZrTe_{5-x}Sb_x$," *Journal of Applied Physics*, **92**, 2524 (2002).

A.L. Pope, R. Gagnon, R. Schneidmiller, **T.M. Tritt,** J. Strom-Olsen, J. Kolis and S. Legault, "Transport in the $Al_{71}Pd_{21}Mn_{8-X}Re_X$ Quasicrystalline System," *Journal of Materials Research*, **17**, 1814 (2002).

A. L. Pope, R. T. Littleton, IV and **Terry M. Tritt**, "Apparatus for Rapid Measurements of Resistivity and Thermopower on Thermoelectric Materials From 10K to 300K," *Revolutionary Scientific Instruments*, **72**, 3129 (2001).

Bartosz M. Zawilski, Roy T. Littleton, IV, and **Terry M. Tritt,** "Description of the Parallel Thermal Conductance Technique for the Measurement of the Thermal Conductivity of Small Diameter Samples," *Revolutionary Scientific Instruments*, **72**, 1770 (2001).

B. M. Zawilski and **Terry M. Tritt**, "Dynamic measurement access, a new technique for fast thermal conductivity Measurement," *Revolutionary Scientific Instruments*, **72**, 3937 (2001).

R. T. Littleton, IV, **Terry M. Tritt,** M. Korzenski, D. Ketchum and J. W. Kolis, "Effect of Sb Substitution On The Thermoelectric Properties Of The Group IV Pentatelluride Materials $M_{1-X}Y_XTe_5$ (M = Hf, Zr and Ti)," *Physical Review B - Rap. Comm.*, **64**, 121104 (2001).

A. L. Pope, **Terry M. Tritt**, R. Gagnon and J. Strom Olson, "Electronic Transport in the Yd-Cd and Y-Zn-Mn Quasicrystals," *Applied Physics Letters*, 79, 2345 (2001).

Refereed Journal Publications (cont.)

A. L. Pope, R. Schneidmiller, J. W. Kolis and **Terry M. Tritt**, "Interplay of the Microstructure and the Thermopower in the Quaternary $Al_{71}Pd_{21}Mn_{8-X}Re_X$ Quasicrystalline System," *Physical Review B*, **63**, 52202 (2001).

Y. Xia, V. Ponnambalam, S. Bhattacharya A. L. Pope, S. J. Poon and **T. M. Tritt**, "Metal-Non Metal Transition and Enhanced Thermoelectric Properties in Half-Heusler Alloys," *Journal of Physics Condensed Matter Physics*, **13**, 77-89 (2001).

Xiang Zhang, Rhonda Patschke, David Singh, Jon Schindler, Carl R. Kannewurf, **Terry Tritt**, George Nolas, and Mercouri G. Kanatzidis, "Thermoelectric Properties and Electronic Structure of the Cage Compounds $A_2BaCu_8Te_{10}$ (A=K,Rb,Cs)," *Journal of Chemistry of Materials*, **13**, 613-621 (2001).

A. L. Pope, B. M. Zawilski and **Terry M. Tritt**, "Utilization of Removable Sample Mounts to Perform Thermal Conductivity Measurements on Bulk Samples," *Cryogenics*, **41**, 725 (2001).

S. Bhattacharya, A. L. Pope, R. T. Littleton, IV, **T. M. Tritt,** V. Ponnambalam, Y. Xia and S.J. Poon, "*Effect of Sb Doping on the Thermoelectric Properties of Ti-based Half-Heusler Compounds* $TiNiSn_{1-X}Sb_X$*",* Applied Physics Letters, **77**, 2476 (2000)

G. S. Nolas, M. Kaeser, R.T. Littleton, IV, and **T. M. Tritt. "***High Figure of Merit in Ytterbium-Filled Skutterudite Materials",* Applied Physics Letters, **77**, 1855 (2000)

B.M. Zawilski, R.T. Littleton IV, and **Terry T. Tritt, "***Investigation of the Thermal Conductivity of the Mixed Pentatellurides* $Hf_{1-X}Zr_XTe_5$*",* Applied Physics Letters, **77**, 2319 (2000)

Y. Xia, V. Ponnambalam, S. Bhattacharya, A. L. Pope, S.J. Poon, and **T. M. Tritt,** "Thermoelectric Properties of semimetallic (Zr, Hf)CoSb Half-Heusler Phases", Journal of Applied Physics, **88**, 1952 (2000)

Refereed Conference Proceedings

Complex MNiSn Phases as Stable High-Temperature Themoelectric Materials
S. Joseph Poon, **Terry M. Tritt**, Slade Culp and Nicoleta Sorloaica
Proceedings of the 24th International Conference on Thermoelectrics, June 19-23, 2005, Clemson, SC, IEEE Press, **in press** (2005)

Experimental Investigation and Modeling of the Lattice Thermal Conductivity of the New Power Generation TiNiSn- Based Half-Heusler System
Nicoleta Sorloaica, **Terry M. Tritt**, Slade Culp and Joe Poon
Proceedings of the 24th International Conference on Thermoelectrics, June 19-23, 2005, Clemson, SC, IEEE Press, **in press** (2005)

Grain Structure and Thermal Conductivity of (Ti, Zr)Ni(Sn,Sb) Half-Heusler Alloys
S. Bhattacharya, M.J. Skove, **T.M. Tritt**, Y. Xia, V. Ponnambalam, S.J. Poon
Proceedings of the 24th International Conference on Thermoelectrics, June 19-23, 2005, Clemson, SC, IEEE Press, **in press** (2005)

Growth and Characterization of Bi_2Te_3 Nanostructures
M. Craps, N. Gothard, R. Rao, **T. Tritt**, and A.M.Rao
Proceedings of the 24th International Conference on Thermoelectrics, June 19-23, 2005, Clemson, SC, IEEE Press, **in press** (2005)

Half-Heusler Phases as Prospective p-type Thermoelectric Materials
V. Ponnambalam, Y. Xia, S. Bhattacharya, A.L. Pope, S.J. Poon and **Terry M. Tritt**
Proceedings of the 24th International Conference on Thermoelectrics, June 19-23, 2005, Clemson, SC, IEEE Press, **in press** (2005)

Measurement of the In-Plane Thermal Conductivity of Single Crystals by Parallel Thermal Conductance Technique
Kelvin R. Aaron and **Terry M. Tritt**
Proceedings of the 24th International Conference on Thermoelectrics, June 19-23, 2005, Clemson, SC, IEEE Press, **in press** (2005)

Optimization Through Substitution and Doping of the High-Temperature Thermoelectric System
Slade Culp, Nicoleta Sorloaica, S. Joseph Poon and **Terry M. Tritt**
Proceedings of the 24th International Conference on Thermoelectrics, June 19-23, 2005, Clemson, SC, IEEE Press, **in press** (2005)

Synthesis and Physical Properties of $N_aCo_2O_4$ Thermoelectric Materials
Xiaofeng Tang, Ed Abbott, J.K. Kolis, Kelvin Aaron, and **Terry M. Tritt**
Proceedings of the 24th International Conference on Thermoelectrics, June 19-23, 2005, Clemson, SC, IEEE Press, **in press** (2005)

Refereed Conference Proceedings (cont.)

Thermal Properties of $Ba_8Ga_{16}Si_xGe_{30-x}$ Clathrates
Paola Alboni, **Terry M. Tritt**, Joshua Martin and G.S. Nolas
Proceedings of the 24th International Conference on Thermoelectrics,
June 19-23, 2005, Clemson, SC, IEEE Press, **in press** (2005)

Thermoelectric Properties of Nanostructures Grown from Bi_2Te_3
N. Gothard, M. Craps, **T. Tritt**, and A.M. Rao
Proceedings of the 24th International Conference on Thermoelectrics,
June 19-23, 2005, Clemson, SC, IEEE Press, **in press** (2005)

Doping Studies and Thermoelectric Properties of TiS_2,
W. Sams, Ed Abbott, J. W. Kolis and **Terry M. Tritt**
Proceedings of the 24th International Conference on Thermoelectrics,
June 19-23, 2005, IEEE Press, Vol. # ??, in press (2005)

Effect of Rare-Earth Doping on the Thermoelectric and Electrical Transport Properties of the Transition Metal Pentatelluride $HfTe_5$
Nathan D. Lowhorn, **Terry M. Tritt**, Edward E. Abbott, J. W. Kolis,
Proceedings of the 24th International Conference on Thermoelectrics,
June 19-23, 2005, IEEE Press, Vol. # ??, in press (2005)

Thermoelectric Properties of Ba-Filled Si-Ge Alloy Type I Semiconducting Clathrates
J. Martin, S. Erickson, G.S. Nolas, P. Alboni and **T.M. Tritt**
Proceedings of the 24th International Conference on Thermoelectrics,
June 19-23, 2005, IEEE Press, Vol. # ??, in press (2005)

Nanostructured Bulk Thermoelectric Matreial and their Properties of Ba-Filled Si-Ge Alloy Type I Semiconducting Clathrates
Eugene Lee, J. Ryu, S. Bhattacharya and **T.M. Tritt**
Proceedings of the 24th International Conference on Thermoelectrics,
June 19-23, 2005, IEEE Press, Vol. # ??, in press (2005)

Effect Of Substitutional Doping On The Structural, Electronic And Thermal Properties Of TiNiSn-Based Half-Heusler Compounds
Joseph Poon, Slade Culp, Nicoleta Sorloaica, and Terry M. Tritt,
MRS Fall 2005, Symposium F Proceedings, in press (2005)

Growth and Characterization of Bi_2Te_3 Nanostructures
M. Craps, N. Gothard, R. Rao, Terry M. Tritt and A. M. Rao
MRS Fall 2005, Symposium F Proceedings, in press (2005)

Refereed Conference Proceedings (cont.)

New Directions in Bulk Thermoelectric Materials Research.
Terry M. Tritt, J. He, B. Zhang, N. Gothard, Daniel Thompson, E. Weeks, Tang Xiaofeng, Kelvin Aaron and X. Ji, and J. W. Kolis,
MRS Fall 2005, Symposium F Proceedings, in press (2005)

Size-selective High-yield Growth of PbTe Nanocrystals Using a Chemical Vapor Deposition Technique
B. Zhang, N. Gothard, J. He, D. Thompson and Terry M. Tritt.
MRS Fall 2005, Symposium F Proceedings, in press (2005)

Thermoelectric Properties of PbTe-based Nanostructures.
N. Gothard, B. Zhang, J. He, D. Thompson and Terry M. Tritt.
MRS Fall 2005, Symposium F Proceedings, in press (2005)

Synthesis and thermoelectric properties of $Na_xCo_2O_4$ oxide materials
Xiaofeng Tang, Ed Abbott, J. K. Kolis, Kelvin Aaron and Terry M. Tritt
MRS Fall 2005, Symposium F Proceedings, in press (2005)

Sr-doped LaRuO3 as a Potential Thermoelectric Material
Jian He, B. Edwards, H. Zhang,Terry M. Tritt, *D. Mandrus, R. Jin and B. Sales*
MRS Fall 2005, Symposium F Proceedings, in press (2005)

Evidence of an Order-Disorder Transition in the Crystalline Phase of Cd_6Yb, 1/1 cubic Approximant of Icosahedral $Cd_{5.7}Yb$
N. Sorloaica, A. L. Pope, D. W. Winkler and **Terry M. Tritt,** V. Keppens, D. Mandrus and B. Sales
Thermoelectric Materials 2003, Research and Applications
Editors: G. Nolas, J. Yang, T. Hogan and D. Johnson
Materials Research Society Proceedings, **793**, 247 (2004)

Grain Structure Effects on the Lattice Thermal Conductivity of Ti-based Half-Heusler Alloys
Terry M. Tritt, S. Bhattacharya, Y. Xia, V. Ponnambalam, S. J. Poon and N. Thadhani
Proceedings Of The 27th International Thermal Conductivity and 15th Thermal Expansion Conference, October 26-30, 2003, Knoxville, TN
in press (2004)

Refereed Conference Proceedings (cont.)

Overview of properties of "metallic" $Na_xCo_2O_4$ thermoelectric materials
Terry M. Tritt, Xiaofeng Tang , Ed Abbott and J. W. Kolis
Proceedings of the Symposium on LTCC Based Electronic Devices,
October 12-17, 2003, Orlando, FL
Electrochemical Society Proceedings, **2003-27**, 257-270 (2004)
Published by the Electrochemical Society, Pennington, NJ

Properties of Metallic $Na_xCo_2O_4$ Thermoelectric Materials
Xiaofeng Tang**, Terry M. Tritt,** Ed Abbott, J. K. Kolis
Thermoelectric Materials 2003, Research and Applications
Editors: G. Nolas, J. Yang, T. Hogan and D. Johnson
Materials Research Society Proceedings, **793**, 229 (2004)

Quasi-Two Dimensional Correlated Electron Systems as Potential Bulk Thermoelectric Materials
Terry M. Tritt, N. D. Lowhorn, Xiaofeng Tang and J. W. Kolis
Proceedings of the 23rd International Conference on Thermoelectrics,
July 25-29, 2004, Adelaide, Australia
IEEE Press, **in press** (2004)

Theoretical Investigation of Substitution Effecte on the Electronic Structure and Transport Properties of Layered Cobalt Oxides: $Na_xCo_2O_4$
Xing Gao, J. Tse, D. Klug and **T. Tritt**
Proceedings of the 23rd International Conference on Thermoelectrics,
July 25-29, 2004, Adelaide, Australia
IEEE Press, **in press** (2004)

Theoretical Studies on the Thermopower of Semiconductors and Low band-Gap Polymers
Xing Gao, D. Klug, J. Tse, I. Levesque, C. T. Ratcliffe and **T. Tritt**
Proceedings of the 23rd International Conference on Thermoelectrics,
July 25-29, 2004, Adelaide, Australia
IEEE Press, **in press** (2004)

Thermoelectric Properties of TiS_2 type materials
Edward E. Abbott, Joseph W. Kolis, Nathan D. Lowhorn, William Sams, and **Terry M Tritt**
Thermoelectric Materials 2003, Research and Applications
Editors: G. Nolas, J. Yang, T. Hogan and D. Johnson
Materials Research Society Proceedings, **793**, 295 (2004)

Refereed Conference Proceedings (cont.)

Transport and Optical Properties Of The Type Ii Clathrates $Cs_8Na_{16}Si_{136}$ and Si_{136};
Matt Beekman, George S. Nolas, Jan Gryko, Gary A. Lamberton, Jr., **Terry M. Tritt**, and Chris A. Kendziora
Proceedings of the Symposium on LTCC Based Electronic Devices, October 12-17, 2003, Orlando, FL
Electrochemical Society Proceedings, **2003-27**, 271-280 (2004)
Published by the Electrochemical Society, Pennington, NJ

Advances and Opportunities in Thermoelectric Materials Research
Terry M. Tritt
DARPA Materials Symposium, February 27, 2003, New Orleans, LA

Effect of Rare-Earth Doping on the Electrical Resistivity and Thermopower of the Transition Metal Pentatelluride $HfTe_5$
N. D. Lowhorn, **T. M. Tritt**, E. E. Abbott, and J. W. Kolis,
SESAPS Meeting, November 6-8, 2003, Wilmington, NC
BAPS 48, 16 (2003)

Effects of various Grain structure and Sizes on the Thermal Conductivity of Ti-based Half-Heusler Alloys
Terry M. Tritt, S. Bhattacharya, Y. Xia, V. Ponnambalam, S.J. Poon and N. Thadhani
Proceedings of the 27th International Conference on Thermal Conductivity and Thermal Expansion in Solid Materials (ICTC27),
October 27-31st, 2003, Knoxville, TN

Effects of various Grain structure and Sizes on the Thermal Conductivity of Ti-based Half-Heusler Alloys
Terry M. Tritt, S. Bhattacharya, Y. Xia, V. Ponnambalam, S.J. Poon and N. Thadhani
Materials Research Society, Symposium S, December 1-4, 2003, Boston, MA

Exploratory Studies of Doped Polymers as Potential High Thermopower Materials
X. Gao, I. Levesque, J. Tse, D. Klug, C. Ratcliffe, M. Lecherc and **Terry M Tritt**
Materials Research Society, Symposium S, December 1-4, 2003
S8-12 (2003)

High figure of merit in Yb-filled $CoSb_3$ skutterudites
G.A. Lamberton, Jr., S. Bhattacharya, **T.M. Tritt** and G.S. Nolas,
American Physical Society Meeting, March 3-7, 2003, Austin, TX
BAPS H25.002, 370 (2003)

Refereed Conference Proceedings (cont.)

Investigation of the Next Generation Thermoelectric Materials
Terry M. Tritt,
DOE/EPSCoR-Conference:"EPSCoR Powered: Pathways to Success."
June 2-4, 2003, Albuquerque, NM

Order-Disorder Transition in the Crystalline Phase of Cd_6Yb
N. Sorloaica, A. L. Pope, D. W. Winkler and **Terry M. Tritt,** V. Keppens, D. Mandrus and B. Sales
Materials Research Society, Symposium S, December 1-4, 2003, Boston, MA
S8-16

Overview of Ceramic Oxide Materials for Potential Thermoelectric Applications
Terry M. Tritt
Meeting of the Electronic Ceramics Symposium,
October 13-17, 2003, Orlando, FL

Overview of Electrical and thermal properties of half Heusler Alloys as Promising Thermoelectric Materials
Terry M. Tritt
Proceedings of the 21st International Conference on Thermoelectrics (ICT03)
August 17 –21, 2003, P 7 Nancy, France (withdrawn due to travel constraints)

Photoinduced Oxidation of Carbon Nanotubes
Triag Savage, S. Bhattacharya, B. Sadanadan, J. Gaillard, **T. M. Tritt**, Ya-Ping Sun, Y. Wu, S. Nayak, R. Car, N. Marzari, P. M. Ajayan, and A. M. Rao
SCAS Meeting, March 20-21, 2003, Clemson, SC
65, 23 and 177 (2003)

Thermal conductivity of the elemental silicon clathrate Si_{136}
G.S. Nolas, M. Beekman, G. Lamberton, **T.M. Tritt** and P.F. McMillan,
Proceedings of the 27th International Conference on Thermal Conductivity and Thermal Expansion in Solid Materials (ICTC 27),
October 27-31, 2003, Knoxville, TN

Thermoelectric Properties of Metallic of $NaCo_2O_4$ Ceramic Oxide Materials
Xiaofeng Tang, Ed Abbott, **Terry M. Tritt,** J. W. Kolis and J. Barnes
Materials Research Society, Symposium S, December 1-4, 2003, Boston, MA
S8-14

Thermoelectric Properties of $NaCo_2O_4$ Ceramic Oxide Materials
Xiaofeng Tang and **Terry M. Tritt**
SCAS Meeting, March 20-21, 2003, Clemson, SC
65, 23 and 177 (2003)

Refereed Conference Proceedings (cont.)

Thermoelectric Properties of TiS_2 type materials
Ed Abbott, J. W. Kolis, Nathan D. Lowhorn, William Sams, and
Terry M Tritt
Materials Research Society, Symposium S, December 1-4, 2003, Boston, MA
S8-30 (2003)

Thermoelectric Properties of Transition Metal Di-Chalcogenides (TiS_2)
Ed Abbott, N. D. Lowhorn, J. W. Kolis and **T.M. Tritt**
American Physical Society Meeting, March 3-7, 2003, Austin, TX
H25.002, 370 (2003)

Thermoelectric Properties of Transition Metal Dichalcogenides (eg. TiS_2) and Grain Boundary Effects in Half-Heusler Alloys
Will Sams, Meredith Russell, S. Bhattacharya, N. D. Lowhorn, and
Terry M. Tritt
SCAS Meeting, March 20-21, 2003, Clemson, SC
65, 27 and 116 (2003)

Transformation of Multiwalled Carbon nanotubes into Strings of Carbon Nanoshells
Bindu Sadanadan, J. Gaillard, T. Savage, S. Bhattacharya, Alan Cassell, D. Srivatsava, Z. R. Dai, Z. L. Wang, **T. M. Tritt**, J. M. Cowley, and A. M. Rao
SCAS Meeting, March 20-21, 2003, Clemson, SC
65, 24 (2003)

Annealing Studies of Re Doped AlPdMn Quasicrystals;
D. W. Winkler A, L. Pope, **Terry M. Tritt**, R. Gagnon, and J. Strom-Olsen
Materials Research Society, Symposium G, (Thermoelectric Materials)
MRS Fall 2001 Proceedings,
Editors: G. S. Nolas, D. Mandrus and D. Johnson
691, 227-232 (2002)

Electrical and Thermal Transport of Rare Earth Doped Pentatellurides
N. D. Lowhorn, J. W. Kolis*, R. T. Littleton, IV and **Terry M. Tritt**
Materials Research Society, Symposium G, (Thermoelectric Materials)
MRS Fall 2001 Proceedings, Editors: G. S. Nolas, D. Mandrus and D. Johnson
691, 113-120 (2002)

High Temperature Electrical Transport Properties of Eu and Yb-doped Skutterudites
R. H. Tedstrom, G. A. Lamberton, **Terry M. Tritt** and G. S. Nolas
Materials Research Society, Symposium G, (Thermoelectric Materials)
MRS Fall 2001 Proceedings, Editors: G. S. Nolas, D. Mandrus and D. Johnson
691, 221-226 (2002)

Refereed Conference Proceedings (cont.)

Investigation of i-AlCuFe Quasicrystals and their ω and β Approximants as Thermoelectric Materials
P. N. Alboni, A. L. Pope, **T. M. Tritt**, A. R. Ross, C. Jenks, and D. Sordolet
Materials Research Society, Symposium G, (Thermoelectric Materials)
MRS Fall 2001 Proceedings, Editors: G. S. Nolas, D. Mandrus and D. Johnson
691, 233-238 (2002)

Novel Thermal Transport in Stable Binary $Cd_{5.7}Yb$ Quasicrystals
A.L. Pope, **Terry M. Tritt,** R. Gagnon, and J. Strom-Olsen
Materials Research Society, Symposium G, (Thermoelectric Materials)
MRS Fall 2001 Proceedings, Editors: G. S. Nolas, D. Mandrus and D. Johnson
691, 65-70 (2002)

Overview of Various Strategies for the Development of New Bulk Materials for Thermoelectric Applications
Terry M. Tritt
Materials Research Society, Symposium G, (Thermoelectric Materials)
MRS Fall 2001 Proceedings, Editors: G. S. Nolas, D. Mandrus and D. Johnson
691, 3-14 (2002)

Reduction of lattice thermal conductivity in ball-milled and shock-compacted TiNiSn Half-Heusler alloys
S. Bhattacharya, **Terry M. Tritt**, Y. Xia, V. Ponnambalam S. J. Poon, and N. Thadhani
Materials Research Society, Symposium G, (Thermoelectric Materials)
MRS Fall 2001 Proceedings, Editors: G. S. Nolas, D. Mandrus and D. Johnson,
691, 155-160 (2002)

Thermoelectric Properties of AlCuFe Quasicrystals and their Approximants
P. N. Alboni, A. L. Pope, **T. M. Tritt**, A. R. Ross, C. Jenks and P. Thiel
Materials Research Society, Symposium G, (Thermoelectric Materials)
MRS Fall 2001 Proceedings, Editors: G. S. Nolas, D. Mandrus and D. Johnson
691, 3-14 (2002)

Thermoelectric Properties of Eu-doped $CoSb_3$
G. A. Lamberton, **Terry M. Tritt** and G. S. Nolas
Materials Research Society, Symposium G, (Thermoelectric Materials)
MRS Fall 2001 Proceedings, Editors: G. S. Nolas, D. Mandrus and D. Johnson
691, 31-36 (2002)

Refereed Conference Proceedings (cont.)

Transformation of Multiwalled Carbon Nanotube into Strings of Carbon Nanoshells
B. Sadanadan, J. Gaillard, T. Savage, S. Bhattacharya, **T. M. Tritt**, and A. M. Rao et. al.,
Materials Research Society, Symposium Z, (Making Functional Materials with Nanotubes), MRS Fall 2001 Proceedings,
Editors: P. Bernier, A. Ajayan, Y. Iwasa , and P. Nikolaev, **691**, Z6-18 (2002)

Effects of various Grain structure and Sizes on the Thermal Conductivity of Ti-based Half-Heusler alloys
Terry M. Tritt, S. Bhattacharya, Y. Xia, V. Ponnambalam, S.J. Poon, and N. Thadhani
Proceedings of the 20th International Conference on Thermoelectrics,
June 8-11, 2001, p 7 Beijing, China
Invited plenary talk at ICT-2001 (2001)

Effects of various Grain structure and Sizes on the Thermal Conductivity of Ti-based Half-Heusler alloys
S. Bhattacharya, **Terry M.Tritt,** Y. Xia, V. Ponnambalam, S. J. Poon and N. Thadhani
Georgia Tech Conference on Nanomaterials and Nanotechnology (Sept. 2001)

Heat Capacity and Hall Effectin Rare Earth Diantimonides
Brian Gamble, G. X. Tessema, N. D. Lowhorn, M. J. Skove, M. Nevitt, **T. M. Tritt** and Y. K. Kuo, S. Budko, P. Canfield and A. Lacerda
2001 March APS Meeting, Seattle WA, (March 12-16 (2001)
BAPS **46**, p 474 (2001)

Influence of Oxygen Adsorption on the Thermoelectric Power (TEP) in Multiwalled Carbon Nanotubes
T. Savage, S. Bhattacharya, B. Sadanadan, J. Gaillard, **T. M. Tritt**, and A. M. Rao
Georgia Tech Conference on Nanomaterials and Nanotechnology (Sept. 2001)

Raman scattering in Sb doped Transition Metal pentatellurides $ZrTe_{5-x}Sb_x$
K. McGuire, Nathan D. Lowhorn, **T. M. Tritt** and A. M. Rao
2001 Fall MRS Meeting, Symposium G, Thermoelectric Materials
Editors: G. S. Nolas, D. Mandrus and D. Johnson
MRS Fall 2001 Symposium G: **(# G5-3)**

Refereed Conference Proceedings (cont.)

Specific Heat and Hall Effect in Rare Earth Diantimonides
Brian Gamble, G. X. Tessema, N. D. Lowhorn, M. J. Skove, M. Nevitt, **T. M. Tritt** and Y. K. Kuo
2001 March APS Meeting, Seattle WA, (March 12-16, 2001)
BAPS **46**, p 1147 (2001)

Effect of Antimony Doping on the Thermoelectric Properties of the Transition Metal Pentatellurides (HfZrTeSb)
R. T. Littleton IV, J. Jeffries, D. R. Ketchum, J. W. Kolis, and **T. M. Tritt,**
Proceedings of the 18th International Conference of Thermoelectrics,
Baltimore, MD, August 1999, p. 614, IEEE Press, (2000)

Effects of the Addition of Co on the Thermoelectric Properties of the AlPdMn Quasicrystalline System
A. L. Pope, **T. M. Tritt**, P. N. Alboni, R. Gagnon, S. Legault, J. Strom-Olsen,
Proceedings of the 18th International Conference of Thermoelectrics,
Baltimore, MD, August 1999, p. 605, IEEE Press, (2000)

High Temperature Electrical Transport in Al-Pd-Mn Quasicrystals
A. L. Pope, **T. M. Tritt**, R. T. Littleton IV, J. Jeffries, M. Feuerbacher, R. Gagnon, S. Legault, and J. Strom-Olsen,
Proceedings of the 18th International Conference of Thermoelectrics,
Baltimore, MD, August 1999, p. 417, IEEE Press, (2000)

Investigation of the Effect of Ga Doping on the Thermoelectric Properties of the AlPdMn Quasicrystalline System
D. W. Winkler, A. L. Pope, **T. M. Tritt**, T. A. Wiener, P. C. Canfield and I. Fisher
Proceedings of the 18th International Conference of Thermoelectrics,
Baltimore, MD, August 1999, p. 398, IEEE Press, (2000)

Measurement Of Physical Properties Of The Copper-Polytellurides
N. D. Lowhorn, R. Patschke, **T. M. Tritt**, and M. G. Kanatzidis
Proceedings of the 18th International Conference on Thermoelectrics,
Baltimore, MD, August 1999, p 424, IEEE Press, (2000)

Parallel Thermal Conductance Technique for Measuring Thermal Conductivity of Smaller Thermoelectric Materials
Bartoze M. Zawilski, R. T. Littleton IV, A. L. Pope, and **T. M. Tritt,**
Proceedings of the 18th International Conference of Thermoelectrics,
Baltimore, MD, August 1999, p. 421, IEEE Press, (2000)

Invited Presentations

Overview of Thermoelectric Phenomenon, Applications and Directions in Bulk Thermoelectric Materials Research.

Terry M. Tritt
Graduate Research Seminar, Materials Science
Ubniversity of Tennessee,
Knoxville, TN; January 18, 2005

Overview of Thermoelectric Phenomenon, Applications and Directions in Bulk Thermoelectric Materials Research.

Terry M. Tritt
Research Fellows Seminar,
United Technologies Research Center,
Hartford, CN: January 21, 2005

Potential Research andTechnological Directions in Bulk Thermoelectric Materials Research.

Terry M. Tritt
Dupont Central Research Center,
Wilmington, DE: January 25, 2005

Potential Research and Technological Directions in Bulk Thermoelectric Materials Research.

Terry M. Tritt
General Motors Central Research Center,
Warren, MI: March 11, 2005

Experimental investigation of the resistivity, thermopower and magnetoresistance of the rare earth doped hafnium pentatelluride system ($REHfTe_5$)

Terry M. Tritt, Nathan D. Lowhorn and J. W. Kolis
"Correlated electron crystals" for the 16th American Conference on Crystal Growth and Epitaxy (ACCGE-16)
Big Sky, Montana, from July 10th through 15th, 2005.

Overview of DOE/EPSCoR Implementation Program in the Next Generation Bulk Thermoelectric Materials for Power generation Applications.

Terry M. Tritt
San Juan, Puerto Rico: September 29, 2005

New Directions in Bulk Thermoelectric Materials Research.

Terry M. Tritt, J. He, B. Zhang, N. Gothard, Daniel Thompson, Tang Xiaofeng, Kelvin Aaron X. Ji and J. W. Kolis,
Materials Research Society Fall 2005 Meeting, Symposium F, Nov. 28 – Dec 2 (2005)

Invited Presentations (cont.)

Overview of Thermoelectric Phenomena & Applications
Terry M. Tritt
BMW Meeting, Clemson University
Clemson SC; February 3, 2004

Overview of Thermoelectric Phenomena & Applications
Terry M. Tritt
DOE Argonne National Lab Meeting, Clemson University
Clemson SC; February 15, 2004

Overview of Thermoelectric Phenomena & Applications
Terry M. Tritt
General Electric Meeting, Clemson University
Clemson SC; March ??, 2004

Quasi-2D Electron Systems as Potential Thermoelectric Materials
Terry M. Tritt
AIST, Laboratory for Advanced Industrial Science & Technology
Osaka, Japan; July 20, 2004

Quasi-2D Electron Systems as Potential Thermoelectric Materials
Terry M. Tritt
Asahi-Kaesi Company
Fuji City, Japan; July 22, 2004

Quasi-2D Electron Systems as Potential Thermoelectric Materials
Terry M. Tritt
Plenary Lecture, 23rd International TE Conference
Adelaide, Australia; July 27, 2004

Overview & Highlight s of Upcoming ICT-2005
Terry M. Tritt
23rd International TE Conference
Adelaide, Australia; July 27, 2004

Advances and Opportunities in Thermoelectric Materials Research
Terry M. Tritt
DARPA Materials Symposium
New Orleans, LA, Feb. 27, 2003

AOP Regional Science Fair Awards Ceremony: **Keynote Address**
Terry M. Tritt, CoES,
Clemson University, March 20, 2003

Invited Presentations (cont.)

Introduction to Thermoelectric Materials
Terry M. Tritt
Clemson University, Department of Chemistry Seminar
Clemson SC, April 21, 2003

Investigation of the Next Generation Thermoelectric Materials
Terry M. Tritt
DOE/EPSCoR-Conference: "EPSCoR Powered: Pathways to Success."
Albuquerque, New Mexico, June 2-4, 2003

Effects of various Grain structure and Sizes on the Thermal Conductivity of Ti-based Half-Heusler alloys
Terry M. Tritt, S.Bhattacharya, Y.Xia, V. Ponnambalam, S.J.Poon and N. Thadhani
Ottawa National Research Institute,
Ottawa Canada, June 24th 2003

Overview of Electrical and thermal properties of half Heusler Alloys as Promising Thermoelectric Materials (withdrawn due to travel constraints)
Terry M. Tritt
Proceedings of the 21st International Conference on Thermoelectrics,
P 7, Nancy France, (August 17 –21st, 2003)

Overview of Ceramic Oxide Materials for Potential Thermoelectric Applications
Terry M. Tritt
2003 Fall Meeting of the Electronic Ceramics Symposium
Orlando, Florida; October 13-17th, 2003

Effects of various Grain structure and Sizes on the Thermal Conductivity of Ti-based Half-Heusler Alloys
Terry M. Tritt, S.Bhattacharya, Y.Xia, V. Ponnambalam, S.J.Poon and N. Thadhani
Proceedings of the 27th International Conference on Thermal Conductivity and Thermal Expansion in Solid Materials
ITCC27, Knoxville, TN; October 27-31st, 2003

Overview of Ceramic Oxide Materials for Potential Thermoelectric Applications
Terry M. Tritt
2003 DARPA –Strategic Analysis MCALC-IV Symposium
San Diego CA; November 19 & 20th, 2003

Invited Presentations (cont.)

Effects of various Grain structure and Sizes on the Thermal Conductivity of Ti-based Half-Heusler Alloys

Terry M. Tritt, S.Bhattacharya, Y.Xia, V. Ponnambalam, S.J.Poon and N. Thadhani
Fall MRS Meeting, Boston MA, Symposium S
Boston, MA; December 1-4th, 2003

Overview of Ceramic Oxide Materials and Transition Metal Dichalcogenides for Potential Thermoelectric Applications

Terry M. Tritt
2003 DARPA DTEC Kickoff Meeting
Las Vegas NV; December 8-11th, 2003

Introduction to Thermoelectric Materials

Terry M. Tritt
South Carolina State University,
Orangeburg, SC, November 13, 2002

Effects of various Grain structure and Sizes on the Thermal Conductivity of Ti-based Half-Heusler alloys

Terry M.Tritt, S.Bhattacharya, Y.Xia, V. Ponnambalam, S.J.Poon and N. Thadhani
Proceedings of the 20th International Conference on Thermoelectrics,
P 7, Bejing China, (June 8-11, 2001)
Invited Plenary talk at ICT-2001,

Overview of Thermoelectric Materials Research and Effects of various Grain structure and Sizes on the Thermal Conductivity of Ti-based Half-Heusler alloys

Terry M.Tritt,
Invited Talk at Asahi Chemical Company, Fuji City Japan (June 15, 2001)

Overview of Thermoelectric Materials Research and Effects of various Grain structure and Sizes on the Thermal Conductivity of Ti-based Half-Heusler alloys

Terry M.Tritt
Invited Talk at Osaka Research Institute, Osaka, Japan (June 14, 2001)

Overview of Various Strategies for the Development of New Bulk Materials for Thermoelectric Applications

Terry M. Tritt
2001 Fall MRS Meeting, Symposium G, **(G1.1)**
Boston, MA, Nov. 30, 2001

Invited Presentations (cont.)

Introduction to Thermoelectric Materials
Terry M. Tritt
Special Dept. of Energy Workshop on
Future Directions in Thermoelectric Materials Research
Oak Ridge National Laboratory,
Oak Ridge, Tenn., January 10 & 11, 2000

The Next Generation Thermoelectric Materials Under Investigation at Clemson University
Terry M. Tritt
Special Dept. of Energy Workshop on
Future Directions in Thermoelectric Materials Research
Oak Ridge National Laboratory,
Oak Ridge, Tenn., January 10 & 11, 2000

Electrical and Thermal Thermal Transport Rapid Measurement Equipment Using a Cryocooler Based Cooling System.
Terry M. Tritt and Roy T. Littleton, IV,
Quantum Design
San Diego, CA, January 14, 2000

The Synthesis Of Metastable Skutterudites and Crystalline Superlattices.
T. M. Tritt, H. Sellinschegg,, Joshua R. Williams, Fred Harris,
D.C.Johnson and M. Kaeser,
and G.S. Nolas,
2000 Spring MRS Meeting, Symposium Z,
San Francisco, CA April XX, 2000

Transport and Thermoelectric Properties of Half-Heusler Phases Based on Transition Metals
T. M. Tritt, S.J. Poon S. Bhattacharya, V. Ponnambalam, Y. Xia, A.L. Pope,
and R. T. Littleton, IV
2000 Spring MRS Meeting, Symposium Z,
San Francisco, CA April XX, 2000

Strategies for the Investigation of New Bulk Materials for Thermoelectric Applications
Terry M. Tritt, A.L.Pope, R. T. Littleton, IV, S.Bhattacharya, M. Kaeser,
S.J.Poon, J. W. Kolis, G. S. Nolas, J. S. Olson, V. Ponnambalam, and Y.Xia
Proceedings of the 19th International Conference on Thermoelectrics,
P 5, Cardiff Wales, (August 20-24th, 2000)
Invited Plenary talk at ICT-2000,

Patents Awarded:

Transition Metal Pentatellurides and Transition Metal Chalcogenide Compounds for Potential Thermoelectric Materials:
Patent Awarded April 22 2003 Patent # 6,552,255 B1
Terry M. Tritt, J. W. Kolis, R. Littleton and C. Feger

Dept. of the Navy-Naval Research Lab Patent Award for:
Preparation of Bi-Sr-Ca-Cu-O High T_C Superconducting Layers and Coated Platinum Wires by Dipping and Post Annealing
(Navy Case # 71270)
Patent Awarded April 14 1992 Patent # 5,104,850

Patents Pending:

High Yield Convective Flow CVD Growth of Nano-Particles
Terry M. Tritt, Bo Zhang and Jian He
Provisional Patent Application Filed, August 3, 2005

HfNiSn-based Half Heusler Alloys that Exhibit Thermoelectric Figure of Merit ZT = 1 at T =800 C and High Thermal Stability
Terry M. Tritt, **(Clemson PI),**
Joe Poon and Slade Culp at University of Virginia
Provision Patent Application Filed serial No 60/677,572
May 4, 2005

Sponsored Research:

Focused Investigation of Specific Half Heusler Alloys to Achieve ZT>1 Above T700C for Potential Use in Segmented Thermoelectric Generators Sponsored by NASA, PI, $80,000, ($80,000), (5/12/2004 to 5/11/2005).

Investigation of the Next Generation Solid State Power Conversion Materials Sponsored by DOE – EPSCOR, PI, $439,955 ($439,955), (8/15/2004 to 8/14/2005).

Investigation of the Next Generation Solid State Power Conversion Materials Sponsored by SC EPSCOR, PI, $368,850, ($368,850), (6/30/2004 to 7/1/2005).

Strategic High FOM Thermoelectric Nanocomposites Sponsored by Aspen Systems, Inc., PI, $31,089, ($31,089), (8/1/2004 to 1/31/2005).

Thermal Conductivity of Thermoelectric Materials Sponsored by E.I. du Pont de Nemours & Company, PI, $42,174, ($42,174), (8/16/2004 to 8/15/2005).

Investigation of the Thermoelectric Properties of Novel Materials for Potential Thermoelectric Power Generation Applications Sponsored by DOD EPSCOR, PI, $500,000, ($500,000), (6/1/2003 to 5/31/2006).

Small Bandgap Polymers as High-Performance Thermoelectric Materials: A Theoretical and Experimental Study Sponsored by ONR (Office of Naval Research), PI, $102,975, ($102,975), (6/21/2002 to 4/30/2005).

Investigation of the Thermoelectric Properties of Novel Materials for Potential Thermoelectric Power Generation Applications Sponsored by SC Research Authority (SCRA) EPSCoR, PI, $147,910, ($147,910), (6/1/2003 to 6/30/2005).

Acquisition of a Fourier Transform Raman and Infrared Spectrometer for Materials Research and Education in South Carolina Sponsored by NSF (National Science Foundation), Co-PI, $173,500, ($173,500), (9/1/2002 to 8/31/2004).

Synthesis and Investigation of the Electrical and Thermal Transport Properties of Single Crystal N-Type Ceramic Oxides for Potential Thermoelectric Applications Sponsored by NASA EPSCoR thru College of Charleston, PI, $10,000, ($10,000), (6/1/2003 to 5/31/2004).

Synthesis and Investigation of the Electrical and Thermal Transport Properties of Single Crystal N-Type Ceramic Oxides for Potential Thermoelectric Applications Sponsored by SC Research Authority (SCRA) EPSCoR, PI, $10,000, ($10,000), (6/1/2003 to 3/31/2004).

Research and Development of Thermoelectric Materials Sponsored by Asahi Kasei Corporation, PI, $99,103, ($99,103), (6/1/2003 to 8/14/2004).

Sponsored Research cont.:

Electrical and Thermal Transport Properties of New and Novel Solid State Systems, DOE – EPSCoR, PI, $50,950 ($50,950), (8/15/00 to 8/14/01).

Electrical and Thermal Transport Properties of New and Novel Solid State Systems, SC Commission on Higher Education, PI, $79,074 ($79,074), (1/15/00 to 1/14/01).

Optical, Electronic, and Thermal Properties of Nano-Composites, DOD EPSCoR, Co-Investigator, $399,999 ($133,333.67), (4/1/99 to 3/31/02).

Project Title is confidential, US Army, PI, $910,707 ($591,959.55), (5/15/97 to 5/14/01).

Investigation of Quasicrystals for Their Potential for Thermoelectric Cooling or Power Generation , US Navy, PI, $333,954 ($333,954), (3/1/98 to 2/28/01).

Investigation of Quasicrystals for Their Potential for Thermoelectric Cooling or Power Generation, Office of Naval Research, PI, $80,255 ($80,255), (3/1/98 to 9/30/01).

A Novel Material System for Thermoelectric Cooling Applications, US Army through Marlow Industries, Inc., PI, $95,083 ($95,083), (7/30/98 to 11/11/00).

Investigation of the Electrical and Thermal Transport in Bulk Amorphous Alloys and Quasicrystals, NSF EPSCoR, PI, $300,000 ($150,000), (1/15/99 to 1/31/00).

Optical, Electronic, and Thermal Properties of Nano-Composites, University of South Carolina through SC EPSCoR, Co-Investigator, $21,955 ($7,245.15), (4/1/99 to 4/28/00).

Optical, Electronic, and Thermal Properties of Nano-Composites, University of South Carolina through SC EPSCoR, Co-Investigator, $39,801 ($13,134.33), (7/1/99 to 6/30/00)

EPSCOR State Matching, University of South Carolina through SC EPSCoR, PI, $101,259 ($50,629.50), (1/15/99 to 4/29/00).

Graduate Student Advising:

Doctoral Graduates:

Lowhorn, Nathan, "Effect of Rate-Earth Doping on the Thermoelectric and Electrical Transport Properties of the Transition Metal Pentatelluride $HfTe_5$", May 2005.

Weston, David Alan, "Quantitative Evaluation of Rubber/Silica Particle Interphase through Measurement of Heat Capacity", December 2004.

Lamberton, Gary A. Jr., "Thermoelectric Proterties of Europium and Ytterbium Doped $CoSb_3$ Skutterudites and Novel Transport in Type II Silicon Clathrates" August 2004.

Bhattacharya, Sriparna, "Investigation of Thermoelectrick Properties of Ti-Based Half-Heusler Alloys", December 2003.

Pope, Amy L., "Electrical and Thermal Transport in Quasicrystalline Systems", December 2002.

Littleton, Roy T., "An Investigation of Transition Metal Pentatellurieds as a Potential Low-Temperature Thermoelectric Refrigeration Material", May 2001

Masters Graduates

Aaron, Kelvin R., "Measurement of the In-Plane Thermal Conductivity of Single Crystals by Modified Parallel Thermal Conductance Technique", August 2005

Sorloaica, Nicoleta Z., "Comparative Study of the Structure, Electronic and Thermal Porperties of the Crystalline Systme Cd_6Yb with the Quasicrystalline System $Cd_{5.7}Yb$", August 2004.

Weston, David Alan, "Quantitative Evaluation of Rubber/Silica Particle Interphase Through Measurement of Heat Capacity", May, 2003.

Kuriakose, Sheba, "Investigation of Thermoelectric Porperties of Mn_5Sb_3 and $NaCo_2O_4$ Type Compounds", May 2002.

Lamberton, Gary A. Jr., "Investigation of Potential Thermoelectric Material Systems: Opal Matrix Systems and Skutterudite Systems", August 2001.

Winkler, Donny W., Characterization of Rhenium Doped Aluminum Palladium Manganese Quasicrystals", August 2001.

Lowhorn, Nathan D. "Electrical and Thermal Transport Porperties in the Copper Polytelluride System", December 2000.

Masters Graduates (cont.)

Kaeser, Michael A., "Thermoelectric Properties of the Rare Earth Filled Skutterudite Compound Cobalt Tri-Antimonide", December 2000.

Current Graduate Advising:

Alboni, Paola N., MS & PhD in Physics, "Clathrates", (May 2008)

Andrews, Justine, MS & PhD in Physics, "Research in Thermoelectric Materials", (May 2008)

Cook, John M., MS in Physics, "Omega 3", (December 2005)

Edwards, Brad, MS & PhD in Physics, "Research in Half-Heuslers", (May 2008)

Gothard, Nicholas, PhD in ? , " ", ( )

Holgate, Tim, MS & PhD in Physics, "Research in Thermoelectric Materials", (May 2009)

Lung, Florin, MS & PhD in Physics, "Research in Thermoelectric Materials", (May 2009)

Sorloaica, Nicoleta Z, PhD in Physics, "Half-Heuslers", (December, 2005)

Su, Zhu, PhD in Physics, "$Na_xV_2O_5$ ", (December 2007)

Tang, Xiaofeng, PhD in Material Science and Engineering, " ", (December 2005)

Zhang, Bo, PhD in Physics, "Lead Chalcogenides Non-Composites: Synthesis, Thermal and Electrical Properties", (December 2007)

Zhang, Huqin, MS & PhD in Physics, "Research in Thermoelectric Materials", (May 2009)

Post Doctoral Research Advisees:

Gao, Xing, "The Next Generation Solid State Power Conversion Materials", (2005-Present)

He, Jian, "The Next Generation Solid State Power Conversion Materials", (2004-Present)

Ji, Xiaohua, "The Next Generation Solid State Power Conversion Materials", (2005-Present)

Ponnambalam, Vijayabarathi, "The Next Generation Solid State Power Conversion Materials", (2005-Present)

Bhattacharya, Sriparna, "The Next Generation Solid State Power Conversion Materials", (2004 – 2005)

Rao, Kasam, "Asahi Project", (2003-2004)

Scheidmiller, Robert, "Quasi-crystals for Thermoelectric Applications", ONR, (1999-2001)

Zawilski, Bart, "Experimental Investigation of Thermal Conductivity of Pentatellurides", DARPA, (1999-2001)

Ketchum, Douglas, "Synthesis of Pentatellurides for Thermoelectrics", DARPA, (1998-2000)

Courses Taught:

MS&E 991 012 – Doctoral Dissertation Research, F05, Su05, F04, S04, Su04, F03, Su03, S03, F02, Su02, S01

MAT E 812 001 – Mat. LS Science & Engineering II, S02, S01

MAT E 811 001 – Mat. LS Science & Engineering I – F01, F00

MAT E 891 002 – Research, S02, F01, Su01, S01, F00, Su00, S00

MAT E 991 008 – Doctoral Dissertation Research, F01, F00, Su00

MAT E 991 009 – Doctoral Dissertation Research, S00

PHYS 290 001 – Physics Research, S04, F03, S03, F02, F01

PHYS 290 002 – Physics Research, S04, F03, S00

PHYS 325 001 – Exper Physics I, F05, F04, F03, F02, F01

PHYS H325 001 – Exper Physics I, F05, F04, F03, F01

PHYS L325 001 – Exper Physics I Lab, F05, F04, F03, F02, F01

PHYS 326 001 – Exper Physics II, S05, S04, S03, S02

PHYS L326 001 – Exper Physics II Lab, S05, F04, S04, S03, S02

PHYS 401 002 – Senior Thesis, F00

PHYS H 401 002 – Senior Thesis, F00

PHYS H 401 003 – Senior Thesis, S00

PHYS 401 019 – Senior Thesis, F05, S05, F04, S04, F03, F01, S01

PHYS 401 119 – Senior Thesis, F05, S05, F04, F03

PHYS H401 119 – Senior Thesis, S05, F04, F03, S01

PHYS 446 001 – Solid State Physics, S01

PHYS 475 001 – Selected Topics, F01, F00, S00

PHYS 646 001 – Solid State Physics, S01

Courses Taught cont.:

PHYS 875 001 – Selected Topics, S00

PHYS 875 002 – Selected Topics, S00

PHYS 875 003 – Selected Topics, F00

PHYS 875 009 – Selected Topics, S00

PHYS 875 010 – Selected Topics, F00

PHYS 875 019 – Selected Topics, F05, F04, S04, F03, S03, F02, S02, F01, S01

PHYS 890 019 – Dir Activ Applied Physics, F05

PHYS 891 018 – Masters Research, S05, S04

PHYS 891 019 – Research, F05, F04, S05, Su04, F03, Su03, S03, F02, Su02, S02, F01, S01, F00

PHYS 891 020 – Research, S00

PHYS 991 018 – Doctoral Research, S05, S04

PHYS 991 019 – Doctoral Research, F05, Su05, F04, Su04, F03, Su03, S03, F02, Su02, S02, F01, S01, F00

PHYS 991 020 – Doctoral Research, S00