

TEXAS STATE VITA: Wilhelmus J. Geerts
Department of Physics
Texas State University at San Marcos
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I. Academic/Professional Background

A. Name: Geerts, Wilhelmus J.

Title: Dr. Ir.

B. Educational Background

<i>Degree</i>	<i>Year</i>	<i>University</i>	<i>Major</i>	<i>Thesis/Dissertation</i>
Ph.D.	1992	University of Twente The Netherlands	physics	Magnetization Distribution at the surface of Co-Cr films: Magneto-Optical, Chemical, and Structural characterization.
M.Sc.	1987	Eindhoven University of Technology, The Netherlands	EE	On Design, Test, and Dataprocessing aspects of Defectmonitors.
Propaedeutic	1984	Eindhoven University of Technology, The Netherlands	EE	

C. University Experience

<i>Position</i>	<i>University</i>	<i>Dates</i>
Associate Professor	Texas State University at San Marcos, Texas	Sept. 2003 - present
Summer Sabbatical	University of Twente, Enschede, The Netherlands	Jun. 2003-Aug. 2003
Assistant Professor	Texas State University at San Marcos, Texas	Sept. 1997-May 2003

D. Relevant Professional Experience

<i>Position</i>	<i>Entity</i>	<i>Dates</i>
Sabbatical	Los Alamos National Laboratory	June 2008 – May 2009
Postdoctoral Research Associate	University of Florida, National High Magnetic Field Laboratory, Gainesville, Florida	April 1995-Aug. 1997
STA fellow	Electrotechnical Laboratory, Tsukuba, Japan.	Sept. 1993 – March 1995
Invited Researcher	National Institute for Advanced Interdisciplinary Research, Tsukuba, Japan.	Jan. 1993-March 1993

Product Development Engineer	Matam Machine Incorporation, Bladel, The Netherlands.	Aug. 1992 - Dec. 1992 April 1993 – Aug. 1993
Research Assistant	Philips Research Laboratories, Eindhoven, The Netherlands.	April 1987 – Oct. 1987

E. Other Professional Credentials (licensure, certification, etc.)

Hold a Dutch engineering title in Electrical Engineering: Ir.

II. TEACHING

A. Teaching Honors and Awards:

- 1) Most inspiring Physics Professor, Society of Physics Student Award 2006-2007.
- 2) TxState College of Science Bonus Award for developing an electronic homework Web site for General Physics 1 and 2, based on a Giancoli Web site. Implemented auto-grading, random shuffling of multiple choice questions, coupling of initial conditions to social security numbers of students, security precautions to detect academic dishonesty, for a Web site of 106 Mbyte (472 pages). The Web site was used by approximately 600 students until it became obsolete by the introduction of Web-Assign. Aug. 1999.

B. Courses Taught:

At Texas State University:

1. Elementary Physics 1 (PHYS1310)
2. Elementary Physics 2 (PHYS1320)
3. Algebra and Trigonometry based General Physics 1 (PHYS1410)
4. Algebra and Trigonometry based General Physics 2 (PHYS1420)
5. Electricity and Magnetism (PHYS2425)
6. Waves and Modern Physics (PHYS2435)
7. Applied Electronics (PHYS3416): Lecture and Lab Class
8. Applied Optics (PHYS3417): Lecture and Lab Class
9. Modern Physics 1 (PHYS3312)
10. Modern Physics 2 (PHYS4311)
11. Electromagnetic Field Theory 1 (PHYS4310)
12. Electromagnetic Field Theory 2 (PHYS4315)
13. Solid State Physics (PHYS5420)
14. Advanced Electronics (PHYS5326): Lecture and Lab Class
15. Magnetic Materials and Measurement Methods (PHYS5370)
16. The Physics of Solar Cells (PHYS5370/PHYS4320)
17. Individual spec. topics course for graduate students: Fundamentals of Research (PHYS5395)
18. Individual spec. topics course for undergraduate students: Independent Study (PHYS4321)

At University of Twente, The Netherlands:

1. TA Measurement Systems laboratory
2. Recitation sessions for Electricity and Magnetism

C. Graduate Theses/Dissertations or Exit Committees):

Chair Thesis Committee (12):

Patrick Holland, Charlie Watts, Brian Donehew, Claude Garrett, Jett Hendrix, Joel Dunn, Chris O'Brien, Elaine Tennant, Chris Lohn, Jonathan Garrett, Hector Valdez, Amanda Gregory.

Member Thesis Committee (>20):

Kellie Fishbeck, Shannon Fritz, Gabriel Monreal (Chemistry), Kevin Radican, Nelson White, Heather Cain, Anita Acevedo, Dana Larison, Casey Smith, James McDonald, Eric Osei-Yadom, Martin Hodo, Benedict Anyamesem-Mensah, Matthew McDougale, David Karhi (CS), Robert Kilbourn, Sagar Ghimire (Technology), Chris Cumby, Gabriel Arellano, Gregory Hodges.

Member Examination Committee (4):

Wayne Lewis, Luke Nai Chang (Technology), Jenny Mount, Russell Kendall

D. Courses Prepared and Curriculum Development:

1. The Physics of Solar Cells (PHYS5370/PHYS4320): Chalk-board course on device-physics based on the following two texts: (1) Applied Photovoltaics (Wenham et al.); (b) The Physics of Solar Cells (Jenny Nelson).
2. Waves and Heat (PHYS2435): In 2007 I obtained funding via the TxState ACC-program to update the existing computers and buy new interfaces. I updated the labmanual to reflect the equipment changes and looked for new software to replace the Fourier program that no longer runs under Windows XP.
3. Applied Optics (PHYS3417): No lab-component did exist for the class. During the summer of 2006, I designed three lab-experiments for the course. One of our graduate students, Christ Lohn, tested the labs, and we offered it for the first time in the fall of 2006. I plan to extend the number of labs in the future. I taught the class again in the fall of 2007 (17 students) and developed three additional lab-experiments.
4. Applied Electronics (PHYS3416): This course had been taught more then two decades as PHYS3316. I changed the book several times, but kept on having evaluation comments on the poor match of course and laboratory. In the summer of 2004 I designed eight new laboratory experiments and wrote a complete new lab-manual. One of our graduate students, Mike Ryan, tested all labs in Summer 2, 2004. In the Fall of 2004 we changed the course we offered the new course as PHYS3416. Since then we have been debugging and extending the lab-manual. In 2005 I obtained funding via the TxState ACC-program to update the computers and extend the number of workstations to 10.
5. Magnetic Materials and Measurement Methods (PHYS5370): a discussion of the properties of magnetic materials and how they are applied in products. Significant course material was developed including a series of PowerPoint presentations. Introduced at TxState in Spring 2001.
6. Advanced Electronics (PHYS5326): a unique interdisciplinary lab class that introduces students to a wide variety of electronic equipment, including a semiconductor parameter analyzer, simulation software, a programmable logic circuit, an impedance analyzer, a spreading resistance measurement system, a cycled refrigerator system for temperature dependent transport measurements, and a mercury probe. The course emphasizes teamwork, Introduced at TxState in Fall 2000.

E. Funded External Teaching Grants and Contracts:

1. Collaborator on the Smaller Learning and Communities Grant, San Marcos Consolidated ISD, \$48,000, U.S. Department of Education, 2000-2003.
The responsibilities for the internship parts of the grant were transferred to the SMTEI-program of Joe Koke and Dana Garcia (co-PI).
2. "Creation of an Applied Master's Degree Program in Materials Physics", NSF-DMR Grant, \$352,000, (co-PI together with Heather Galloway and Carlos Gutierrez), 2000-2003.

F. Submitted, but not Funded, External Teaching Grants and Contracts:

Available upon request.

G. Funded Internal Teaching Grants and Contracts:

1. "Upgrade of the Heat-Optics-Modern Physics Teaching Lab" (PI together with Carl Ventrice), \$17,259, ACC-2007, computer replacement program TxState.

2. "Expansion of the Physics Computer Simulation Laboratory" (co-PI together with Greg Spencer), ACC-2006, computer replacement program TxState.
3. "Workstations for the Electronics Teaching Lab" (PI together with Greg Spencer), \$19,500, spring 2005, ACC-grant Txstate University.
4. "Development of an Electronic Homework Web site for PHYS1410", \$2,000, Merrick Instructional Enhancement Grant, 1998-1999 (PI).

H. Submitted, but not Funded, Internal Teaching Grants and Contracts:

N/A

I. Other:

N/A

III. SCHOLARLY/CREATIVE

A. Works in Print

1. Books (if not refereed, please indicate)

a. Scholarly Monographs:

1. Wim Geerts, "Magnetization Distribution at the surface of Co-Cr films: Magneto-Optical, Chemical and Structural characterization", ISBN NR 90-9004803, Enschede, The Netherlands, 1992.

b. Textbooks:

N/A

c. Edited Books:

N/A

d. Chapters in Books:

N/A

e. Creative Books:

N/A

2. Articles

a. Refereed Journal Articles:

NOTE: undergraduate students are underlined, **graduate students** are printed in bold; *high school teachers* are italicized and underlined. The total number of students that has worked in my lab at TxState is 43.

2. Martin J. Sablik, Wilhelmus J. Geerts, **Kyle Smith**, **Amanda Gregory**, Clayton Moore, Daniel Palmer, Anup Bandyopadhyay, Fernando J. G. Landgraf, Marcos F. de Campos, accepted for publication in IEEE Trans. on Magn. March 2010 (impact factor: 1.13)
3. R.K Pandey, P. Padmini, R. Schad, J. Dou, H. Stern, R. Wilkins, R. Dwivedi, W.J. Geerts, and **C.O'Brien**, "Novel Magnetic-Semiconductors in Modified FeTiO₃ for Radhard Electronics", *J. Electroceramics* 22 (2009) pp. 334–341 (impact factor 0.99).
4. **Gabriel H. Monreal**, Michael Blanda, Wilhelmus Geerts, Heather Galloway, Gregory F. Spencer, A conformationally-immobile, partially-functionalized calixarene as a negative electron beam resist, *J. Vac. Sc. Techn. B* 23 (2005) pp. 1998 (impact factor 1.63).
5. Andrew P. Schuetze, **Wayne Lewis**, Chris Brown, Wilhelmus J. Geerts, "A Lab Class on the Four-Point Probe Technique", *Am. J. Phys* 72 (2004) pp. 149 (impact factor 0.72).
6. Frances Hellman, Wim Geerts, **Brian Donehew**, "Magneto-optic Measurements of Amorphous Gd-Si Alloys", *Phys. Rev. B* 67 (2003) 12406 (impact factor 3.327).
7. **Claude Garrett**, **Patrick Holland**, Wilhelmus J. Geerts, Dustin Ragan, Archana Dubey, Steve Rios, Anup K. Bandyopadhyay, "Thickness Dependence of the Magnetic Hysteresis of NiFe-31% Films as a Function of an Applied Isotropic In-plane Stress", *J. Appl. Phys* 93, pp. 8624-8627 (2003) (impact factor 2.28).
8. **Patrick Holland**, Mary Kempton, Dustin Ragan, Steve Rios, Anup K. Bandyopadhyay, Archana Dubey, Wilhelmus J. Geerts, "Magnetic Hysteresis Measurements of Thin Films of

- NiFe-31% under Isotropic Stress”, *J. Magn. Magn. Mat.* 250 (2002) L1-L5 (impact factor 1.05).
9. Wilhelmus Geerts, **Brian Donehew**, Vaughan Williams, Thomas Schmiedel, “A Set-up for Measuring Magneto-optical Kerr Hysteresis Curves at High Fields and Low Temperature”, *Rev. Sci. Instrum* 73 (2002) 2086 (impact factor 1.44).
 10. *Ena S. Bichsel*, Brenda Wilson, Wilhelmus J. Geerts, “Recorded Bit Pattern Imaging of Floppy Disks and Phone-cards with Toner-Fluid”, *The Physics Teacher* 40 (2002) 150.
 11. **J.A. Caballero**, W.J. Geerts, F. Petroff, F. Thiele, “Magnetic and magneto-optical properties of NiMnSb thin films”, *J. Magn. Magn. Mat.* 177-181 (1998) 1229-1230.
 12. **J. Hong**, **J.A. Caballero**, W. Geerts, J.R. Childress, S.J. Pearton, “Dry and Wet Etch Processes for NiMnSb Heusler Alloy Thin Films”, *J. Electrochem. Soc.* 144 (1997) 3602.
 13. J.A. Caballero, W.J. Geerts, and J.R. Childress, F. Petroff and P. Galtier, J.-U. Thiele and D. Weller, “Structure and Magneto-Optical Properties of Sputter-Deposited NiMnSb Thin Films”, *Appl. Phys. Lett.* 71 (1997) 2382.
 14. W. Geerts, T. Katayama, Y. Suzuki, J. Childress, “Wavelength dependence of the magneto-optical properties of the interfaces of a Au sandwiched (001) Fe film”, *J. Vac. Sci. Techn. B* 14 (1996) 3176.
 15. T. Katayama, W. Geerts, Y. Suzuki, D. Fujitani, N. Okuzawa, “Oscillation of magneto-optical Kerr effect in Co ultra-thin films”, *J. Magn. Magn. Mat.* 156 (1996) 171.
 16. N. Okuzawa, T. Katayama, D. Fujitani, W. Geerts, and Y. Suzuki, “Magneto-Optical Kerr effect in different surfaces of epitaxially grown Co Films”, *J. Magn. Soc. Jpn.* 20 (1996) 193.
 17. W. Geerts, J.D. MacKenzie, C.R. Abernathy, S.J. Pearton, and T. Schmiedel, “Electrical transport in p-GaN, n-InN, and n-InGaN”, *Solid State Electronics* 39 (1996) 1289-1294.
 18. N. Bardou, B. Bartenlian, F. Rousseaux, D. Decanini, F. Carcenac, E. Cambril, M.F. Ravet, C. Chappert, P. Veillet, P. Beauvillain, R. Megy, W. Geerts, J. Ferre, “Elaboration and magneto-optical study of submicron magnetic structures in Au/Co/Au ultrathin films”, *J. Magn. Magn. Mat.* 156 (1996) 139.
 19. T. Katayama, Y. Suzuki, W. Geerts, “Magneto-Optical transition due to a formation of quantum well states in magnetic ultra-thin films and multilayers (invited)”, *J. Magn. Magn. Mat.* 156 (1996) 158.
 20. Y. Suzuki, W. Geerts, T. Katayama, “The Magneto-Optical quantum size effect of ultra-thin epitaxial Fe films”, *Optoelectronics-Devices and Technologies* 10 (1995) 269.
 21. W. Geerts, T. Katayama, and Y. Suzuki, “On the oscillation of the magneto-optical properties of ultrathin epitaxial Fe films (invited)”, *J. Magn. Soc. Jpn.* 19, S1 (1995) 309.
 22. T. Katayama, D. Fujitani, W. Geerts, N. Okusawa, Y. Suzuki, C.-G. Lee, H. Takeda, H. Kataoka, K. Fukamichi, and Y. Shimada, “Magneto-Optical Kerr Rotation Spectra in sputtered granular Co-Au alloy films”, *J. Magn. Soc. Jpn.* 19, S1 (1995) 243.
 23. T. Katayama, Y. Suzuki, W. Geerts, “A new Magneto-Optical Effect due to Quantum Well States in Metallic Ultrathin films”, *ETL reports* 7 (1995) 63.
 24. W. Geerts, Y. Suzuki, T. Katayama, K. Tanaka, K. Ando and S. Yoshida, “Thickness dependent oscillation of the magneto-optical properties of Au-sandwiched (001) Fe films”, *Phys. Rev. B* 50 (1994) 12581.
 25. T. Katayama, Y. Suzuki, M. Hayashi, and W. Geerts, “Change of Magneto-Optical Kerr rotation due to interlayer thickness in magnetically coupled films with noble-metal wedge”, *J. Appl. Phys.* 75 (1994) 6360.
 26. W. Geerts, C. Lodder, Th. Popma, “Biaxial Kerr Magnetometry in oblique field for the study of thin films with a perpendicular anisotropy”, *J. Magn. Magn. Mat.* 137 (1994) 224.
 27. M. Hayashi, T. Katayama, Y. Suzuki, M. Taninaka, A. Thiaville, W. Geerts, “Magneto-Optical Kerr rotation spectra in Fe ultrathin film on noble metals”, *J. Magn. Magn. Mat.* 126 (1993) 547-549.

28. W.J.M.A. Geerts, J.C. Lodder, Th.J.A. Popma, "A combined optical and magneto-optical measurement system", *Rev. Sc. Instrum.* 64 (1992) 1805.
29. W.J.M.A. Geerts, J.C. Lodder, Th.J.A. Popma, "Surface properties and stray fields of RF-sputtered Co-Cr films", *J. Magn. Magn. Mat.* 104-107 (1992) 971-972.
30. J. Simsova, V. Kambersky, R. Gemperle, J.C. Lodder, W.J.M.A. Geerts, B. Otten, P. ten Berge, "Domainstructure of Co-Cr films", *J. Magn. Magn. Mat.* 101 (1991) 196-198.
31. T. Masuda, W.J.M.A. Geerts, J.C. Lodder, "Surface chemical state of sputtered Co-Cr films", *J. Magn. Magn. Mat.* 101 (1991) 123.
32. W.J.M.A. Geerts, J.G.Th. te Lintel, J.C. Lodder, Th.J.A. Popma, "Anomalous Hc in Co-Cr films", *IEEE Trans. Magn.* 26 (1990) 36-38.

b. Non-refereed Articles:

1. W. Geerts, "On the Design of a Magneto-Optical probe for measurements in High fields and at low temperatures", published on the NHMFL web-site:
<http://www.magnet.fsu.edu/usershub/scientificdivisions/dcfield/magnetometry/mok3/documents/hfmoker.pdf>
2. W. Geerts, "MOK3: A high field magneto-optical Kerr probe.", published on the NHMFL web-site:
<http://www.magnet.fsu.edu/usershub/scientificdivisions/dcfield/magnetometry/mok3/documents/userman.pdf>

3. Conference Proceedings

a. Refereed Conference Proceedings:

NOTE: undergraduate students are underlined, **graduate students** are printed in bold; *high school teachers* are italicized and underlined. The total number of students that has worked in my lab at TxState is 43.

33. Dan E. Tamir, Natan T. Shaked, Wilhelmus J. Geerts, Shlomi Dolev, "Combinatorial Optimization Using Electro-Optical Vector by Matrix Multiplication Architecture", *Lecture Notes in Computer Science* 5882 (2009) 130-143 (impact factor 0.52).
34. **Christopher Lohn**, Wilhelmus J. Geerts, **Chris B. O'Brien**, J. Dou, P. Padmini, K. Pandey, R. Schad, "IV and CV Characteristics of multifunctional Ilmenite-Hematite $0.67\text{FeTiO}_3-0.33\text{Fe}_2\text{O}_3$ ", *Functionalized Nanoscale Materials, Devices and Systems, NATO Science for Peace and Security Series B: Physics and Biophysics, Volume . ISBN 978-1-4020-8902-2. Springer Netherlands, 2008, p. 419-424.*
35. R. K. Pandey, H Stern, W.J. Geerts, P Padmini, P. Kale, J. Dou, R. Schad, Room Temperature Magnetic-Semiconductors in Modified Iron Titanates: Their Properties and Potential Microelectronic Devices, *Advances in Science and Technology Vol. 54 (2008) pp 216-222.*
36. R.K. Pandey, P. Padmini, L.F. Deravi, N.N. Patil, P. Kale, J. Zhong, J. Dou, L. Navarrete, R. Schad, M. Shamsuzzoha, **C. O'Brien**, W.J. Geerts, "Magnetic-Semiconductors in Fe-Ti-Oxide Series and their Potential Applications", proceedings of the 8th International Conference on Solid-State and IC Technology, October 23-24 2006, Shanghai, China.
37. Y. Suzuki, T. Katayama, W. Geerts, P. Grunberg, K. Takanashi, R. Schreiber, P. Bruno, and S. Yuasa, "Magneto-Optical effects of ultrathin ferro-, antiferro and non-magnetic films", in

Magnetic ultrathin films, multilayers and surfaces, Mat. Res. Soc. Symp. Proc. 475 (1997) 227.

38. W. Geerts, J.D. MacKenzie, C.R. Abernathy, S.J. Pearton, and T. Schmiedel, "Temperature dependence of the electrical transport of carbon doped GaN", in Compound Semiconductor Electronics and Photonics, Mat. Res. Soc. Symp. 421 (1996) 425.
39. J. Hack, M.H. Ludwig, W. Geerts, R.E. Hummel, "Ferromagnetic Properties of Spark-Processed Photoluminescing Silicon", in Advances in microcrystalline and nanocrystalline semiconductors, Mat. Res. Soc. Symp. Proc. 452 (1996) 147.
40. Y. Suzuki, T. Katayama, W. Geerts, P. Bruno, and H. Sawada, "The magneto-optical quantum size effect in bcc-Fe (001) and (110) ultrathin films" in Structure and Properties of multi-layered thin films, Mat. Res. Soc. Symp. 382 (1995) 237.
41. J.R. Childress, J.A. Caballero, W.J. Geerts, F. Petroff, P. Galtier, Y. Suzuki, J.-U. Thiele, and D. Weller, "Low-temperature growth of NiMnSb Heusler alloy thin films", in Magnetic Ultrathin Films, multilayers, and surfaces, Mat. Res. Soc. Symp. Proc. 475 (1997) 15.
42. Y. Suzuki, T. Katayama, W. Geerts, P. Bruno, H. Sawada, "Magneto-Optical quantum size effect in bcc-Fe (001) and (110) ultrathin films (invited)", Mat. Res. Soc. Symp. Proc. 382 (1995) 237.

b. Non-refereed:

N/A

4. Abstracts:

No record

5. Reports:

N/A

6. Book Reviews:

N/A

7. Other:

43. Wilhelmus J. Geerts, Larry Larson, Clois Powell, Byounghak Lee, Christian Ringhofer, "Particle Photovoltaics using Silicon", US provisional patent 61/209,268, 2009.

B. Works not in Print

1. Papers Presented at Professional Meetings (no record of presentation before 1997):

NOTE: undergraduate students are underlined, **graduate students** are printed in bold; *high school teachers* are italicized and underlined. The total number of students that has worked in my lab at TxState is 43.

Posters:

1. **Hector Valdez**, Wilhelmus Geerts, Larry Larson, "Losses in Particle Photovoltaics", poster presentation TSAPS Fall meeting October 2009, Texas State University.
2. Martin J. Sablik, Wilhelmus J. Geerts, Fernando J.G. Landgraf, Marcos F. De Campos, „Modeling of plastic deformation in ferromagnetic thin films“, 19th Soft Magnetic Materials Conference, Torino Italy, September 2009.
3. Anup Bandyopadhyay, Wim Geerts, Kyle Smith, Amanda Gregory, Clayton Moore, Daniel Palmer, Jitendra Tate, Martin Sablik, "Plastic deformation of thin ferromagnetic films on nitinol sheet metal", poster presentation MMM-2008, Austin, November 2008.
4. Clayton Moore, Conrad Newton, Wilhelmus Geerts, Daniel Palmer, Dan Tamir, "Optical Lithography on non-flat surfaces; A Case Study.", poster presentation combined 4CS-TS APS Fall meeting October 2008, UTEP.
5. Amanda Gregory, Kyle Smith, Clayton Moore, Daniel Palmer, Anup Bandyopadhyay, Wim Geerts, Martin Sablik, "The Effect of Plastic deformation on the Magnetic Properties of thin Iron and Permalloy Films." Poster Presentation combined 4CS-TS APS Fall meeting October 2008, UTEP.
6. Amanda Gregory, Kyle Smith, Clayton Moore, Daniel Palmer, Anup Bandyopadhyay, Wilhelmus J. Geerts, M.J. Sablik, The Effect of Plastic Deformation on the Magnetic Properties of Thin Iron and Permalloy Films, poster presentation Texas State Undergraduate Research Conference and Honor's Thesis Forum, November 30, 2007.
7. Daniel Fenter, **Elaine Tennant**, Wilhelmus Geerts, "Non Invasive Optical Imaging by Speckle ensemble: Light Scattering of frosted glass, paper, and chicken meat", poster presentation at Texas State Undergraduate Research Conference & Mitte Honors Thesis Forum, Nov. 2006.
8. Wilhelmus J. Geerts, **Claude Garrett**, Greg Spencer, Carlos Gutierrez, **Jett Hendrix**, Casper S. Doppen, Leon Abelmann, **Hans-Willem Ten Brinke**, **Nelson White**, Magnetic Reversal in NiFe Patterned Thin Films, poster presentation MMM conference (October 2005) San Jose.
9. Gregory Spencer, Wilhelmus Geerts, Gregory Kidd, Gene Stouder, *Bonnie Marshall*, *John Sarsoza*, "Exposing High School Students to High Technology", Poster Presentation at the APS national Spring Meeting, Austin Texas, March 3-7 2003.
10. **Jett Hendrix**, Wilhelmus Geerts, Arun Vijayakumar, "Ellipsometry on magnetic gratings of NiFe", Poster at the first annual central Texas workshop on contamination control and chemical metrology, October 2002, San Marcos, TX.
11. Jacob Grimes, Wilhelmus Geerts, **Patrick Holland**, Anup Bandyopadhyay, Carlos Gutierrez, John Givens, Ted Oyama, Kevin Radican, Nazul Rivera, "Optical Properties of Mo₂C", Poster at the first annual central Texas workshop on contamination control and chemical metrology, October 2002, San Marcos, TX.

12. **Claude Garrett**, Wilhelmus Geerts, Greg Spencer, "Using a laserwriter system for maskless photolithography", Poster at the first annual central Texas workshop on contamination control and chemical metrology, October 2002, San Marcos, TX.
13. Y. Suzuki, T. Katayama, W. Geerts, P. Bruno, S. Yuasa, T. Yori, "Magneto-optical effects in bcc-Fe ultrathin films", International Symposium on Physical Problems of Magnetic Materials 1998, Sendai, Japan.

Presentations:

14. Dan Tamir, Natan Tzvi Shaked, Wilhelmus J Geerts and Shlomi Dolev, "Combinatorial Optimization Using Electro-Optical Vector by Matrix Multiplication Architecture", OSC November 2009, 2nd international workshop on SuperComputing in Betinoro.
15. **Amanda Gregory**, Martin Sablik, Wilhelmus Geerts, **Kyle Smith**, Anup Bandyopadhyay, Fernando Landgraf, Marcos de Campos, "Magnetoplastic Properties of Thick Films on Nitinol Substrate", oral presentation TSAPS Fall meeting October 2009, San Marcos.
16. Daniel Palmer, **Patrick Read**, Dan E. Tamir, Conrad Newton, Wilhelmus J. Geerts, "Optical Lithography on 3D surfaces", Texas Academy of Science March 2009, Texas Tech, Junction City.
17. Daniel Palmer, **Patrick Read**, Dan E. Tamir, Conrad Newton, and Wilhelmus J. Geerts, "Optical Lithography on Non-flat Surfaces", oral and poster presentations at Texas State Undergraduate Research Conference and Honor's Thesis Forum, December 2008.
18. R.K. Pandey, H. Stern, W. Geerts, P. Padmini, P. Kale, J. Dou, R. Schad, "Room Temperature Magnetic-Semiconductors in Modified Iron Titanates: Their Properties and Potential Microelectronic Devices", invited oral presentation International Congress on Smart Materials and Micro/Nanosystems (CIMTEC 2008) held in Acireale, Sicily, Italy, June 2008.
19. R.K. Pandey, P. Padmini, R. Schad, J. Dou, H. Stern, R. Wilkins, R. Dwivedi, W.J. Geerts, and **C.O'Brien**, "Novel Magnetic-Semiconductors in Modified FeTiO₃ for Radhard Electronics", invited oral presentation at the International Conference on Electroceramics, July 2007, Tanzania.
20. **Christopher Lohn**, Wilhelmus J. Geerts, **Chris B. O'Brien**, J. Dou, P. Padmini, K. Pandey, R. Schad, "IV AND CV CHARACTERISTICS OF MULTIFUNCTIONAL ILMENITE-HEMATITE 0.67FeTiO₃-0.33Fe₂O₃", oral presentation "Functionalized Nanoscale Materials, Devices, and Systems for chem.-bio Sensors, Photonics, and Energy Generation and Storage" NATO-Advanced Study Institute, June 4-15, 2007, Sinaia, Romania.
21. **Elaine Tennant**, Wilhelmus J. Geerts, Zvi Yaniv, Donald Schropp, "N-IR-NOISE: Near Infrared Non-Invasive Optical Imaging on an object hidden in a chicken breast", oral presentation Texas Section APS spring meeting, 2007.
22. R.K. Pandey, P. Padmini, L.F. Deravi, N.N. Patil, P. Kale, J. Zhong, J. Dou, L. Navarrete, R. Schad, M. Shamsuzzoha, **C. O'Brien**, W.J. Geerts, "Magnetic-Semiconductors in Fe-Ti-Oxide Series and their Potential Applications", invited oral presentation at the 8th International Conference on Solid-State and IC Technology, October 23-24 2006, Shanghai, China.
23. **Joel Dunn**, Wilhelmus Geerts, Gregory Spencer, **Claude Garrett**, **Jett Hendrix**, Magnetic Reversal in NiFe Gratings, oral presentation at the TSAPS meeting Fall 2005, Houston.

24. **Jonathan Garrett**, Wilhelmus Geerts, A Measurement Setup to Study the Magnetostriction of Sputtered NiFe thin films, Fall 2004 meeting Texas Section of the American Physics Society, Baylor University, Waco, Texas, 2004.
25. **McDonald, James S.**; Martinez, Casey; **Radican, Kevin**; **Botello, Eric**; Koeck, Deborah C.; Donnelly, David; Geerts, Wilhelmus; Spencer, Gregory; Galloway, Heather C., "Reactive Ion Etching of SiC and SiCN using Tetrafluoroethane and Oxygen", Fall 2004 meeting Texas Section of the American Physics Society, Baylor University, Waco, Texas.
26. Sonny Garcia, **Hans-Willem ten Brinke**, Wilhelmus Geerts, A Scanning Magneto-Optical Kerr Microscope to study the Domain Pattern of Stressed Magnetic Thin Films, Fall 2004 meeting Texas Section of the American Physics Society, Baylor University, Waco, Texas.
27. Wendy Avila, Wilhelmus Geerts, A.K. Bandyopadhyay, Carlos Gutierrez, Haichun Yang, M. Levy, "Magnetic Characterization of Bi-YIG", Presented at the Spring Meeting of the Texas section of the Society of Physics Students, May 7 2003, San Marcos, TX.
28. **Jett Hendrix**, Wilhelmus Geerts, "Kerr Magnetometry on NiFe gratings", Oral Presentation at the Spring Meeting of the Texas section of the Society of Physics Students, May 7 2003, San Marcos, TX.
29. **Gabriel Monreal**, Mike Blanda, Wilhelmus Geerts, Greg Spencer, "3-angle Ellipsometric Thickness Measurement of 2 Novel Calixarene Electron Beam Negative Resists", Presented at the Spring Meeting of the Texas section of the Society of Physics Students, May 7 2003, San Marcos, TX.
30. **James McDonald, Kevin Radican**, Wilhelmus Geerts, Greg Spencer, David Donnelly, Heather Galloway, "Photolithography to Prepare Waveguides on low-k Dielectrics on SiC Underlayers", Presented at the Spring Meeting of the Texas section of the Society of Physics Students, May 8 2003, San Marcos, TX.
31. **Kevin P. Radican**, Deborah C. Koeck, Wilhelmus Geerts, Gregory Spencer, David Donnelly, Heather C. Galloway, "Microwave Characterization of Low-k Dielectric Thin Films using a Coplanar Waveguide", Presented at the National Spring Meeting of the American Physical Society, March, 2003, Austin, TX.
32. Jacob Grimes, W. Geerts, A. Bandyopadhyay, Gutierrez, **K. Radican**, N. Rivera, **P. Holland**, J. Givens, Ted Oyama, "Optical Characterization of polished Mo2C foil", Presented at the national Spring Meeting of the American Physical Society, March, 2003, Austin, TX.
33. **Claude Garrett**, Wilhelmus Geerts, Greg Spencer, Fabrication and Magnetic Properties of Patterned Thin NiFe-35% Films, oral presentation 2002 TSAPS spring meeting, Stephen F. Austin State University Nacogdoches, Texas.
34. **Claude Garrett, Patrick Holland, Dustin Ragan**, Wilhelmus J. Geerts, Archana Dubey, Steve Rios, Anup K. Bandyopadhyay, "The Magnetic Hysteresis of NiFe-31% Films as a Function of an Applied Isotropic In-plane Stress", Presented at the Magnetism and Magnetic Materials Conference, November, 2002, Tampa, FL.
35. Wim Geerts, "Ellipsometry for contamination control or chemical metrology?", Workshop On Semiconductor Contamination Control and Chemical Metrology, October, 2002, San Marcos, TX.

36. Brenda K. Wilson, Archana Dubey, Wilhelmus Geerts, "Magnetic Domain imaging using the Bitter Colloid Technique", 2001 Annual meeting Texas Academy of Science, March 1-3, Southwest Texas State University.
37. **Brian Donehew**, Wilhelmus Geerts, "Investigating the MO Kerr effect of Metals under high pressure", 2001 Annual meeting Texas Academy of Science, March 1-3, Southwest Texas State University.
38. **Brian Donehew**, Wilhelmus Geerts, Experimental Setup to measure the Magneto-Optical Kerr Effect under High Pressure", 2001-Fall Texas Section SPS meeting, Fort-Worth, TX.
39. Chris Brown, Wilhelmus J. Geerts, Spreading Resistance Probe Measurements, Fall-2001 meeting Texas section of SPS, Fort Worth.
40. *Ena S. Bichsel*, Wilhelmus J. Geerts, Magnetic Domain Imaging of Floppy disks and Credit-cards with copying toner, national AAPT winter-meeting, Kissimi (FL) January, 2000.
41. *Ena S. Bichsel*, Magnetic Domain Imaging, State Conference of the Texas Middle School Association, Austin, February 25, 2000, 2:00-2:45.
42. *Ena S. Bichsel*, Wilhelmus J. Geerts, Visualizing Recorded Bit Patterns on Credit Cards and Floppy Disks using Copying Toner, Texas Section AAPT spring-meeting, College Station March 2000.
43. **Patrick Holland**, Archana Dubey, Wilhelmus J. Geerts, Magnetic Hysteresis Measurements of thin films under isotropic stress, Texas Section APS fall-meeting, Houston, Rice University, October 2000.
44. Philip Smith, Christie Weidner, Gene Stouder, Wilhelmus J. Geerts, Microstructuring Magnetic Thin Films Using a Converted Optical Microscope, Texas Section SPS spring-meeting, College Station March 2000.
45. **Charlie Watts**, **Anita Acevedo**, Wilhelmus J. Geerts, Biaxial Kerr Magnetometry on Fe/Al₂O₃ Multilayers, Texas Section APS spring-meeting, College Station March 2000.
46. *Andrew Shuetze* and Wilhelmus J. Geerts, "Four Probe Sheet Resistivity Measurements of a Water Model", Presented at the Spring Meeting of the Texas Section of the American Association of Physics Teachers, March 4-6, 1999, Tyler, TX.
47. Wilhelmus J. Geerts, "A new probe to perform magneto-optical Kerr measurements on thin films and multilayers", Presented at the APS National Spring Meeting, 1998, Los Angeles, CA.

2. Invited Talks, Lectures, and Presentations:

NOTE: undergraduate students are underlined, **graduate students** are printed in bold; *high school teachers* are italicized and underlined. The total number of students that has worked in my lab at TxState is 43.

48. Wilhelmus J. Geerts, "Magneto-elastic and Magneto-plastic properties of thin ferromagnetic thin films", University of Texas San Antonio, August 2009 (invited).
49. Wilhelmus Geerts, "Perpendicular Magnetic Recording: The influence of the surface", Presented at the Department of Physics, April 3 2008, Sam Houston State University, Huntsville, TX (invited).

50. Wilhelmus Geerts, **Elaine Tennant**, Joseph Rosen, "Optical Imaging of objects hidden in a scattering medium", NAC presentation from Winstead's Austin Office, April 24, 2006 (invited).
51. Joseph Rosen, Wilhelmus J. Geerts, Zvi Yaniv, "Reconstruction of objects hidden in scattering medium using MLA, presentation at Applied Nanotech Incorporation, Austin, Texas, Spring 2006 (invited).
52. Wilhelmus J. Geerts, "Magnetic Recording Materials", Presented at San Antonio Community College, Spring, 2001, San Antonio, TX (Bridges Program).
53. Wilhelmus J. Geerts, "On the surface properties of Co-Cr films", Presented at the Department of Physics, 1998, Trinity University, San Antonio, TX (invited).

3. Consultancies:

N/A

4. Workshops:

1. TSAPS Short tutorial on photovoltaics: 3 hour state wide workshop taught at the Fall-2009 TSAPS meeting together with Dr. Larry Larson and Dr. Byounghak Lee.
2. MicroFab/Electronics: a one-day workshop that illustrates how subjects taught in chemistry, physics, mathematics, and technology high school classes work together in a complex manufacturing process, Taught in two sections to the AP Physics students of San Marcos High School (together with Greg Spencer and Greg Kidd).

5. Other:

N/A

C. Grants and Contracts

1. Funded External Grants and Contracts:

1. "Chemistry and Physics of n-Doping Electroactive Polymers: Computationally Directed Synthesis for Improved Performance.", Research Corporation 10775, Cottrell College Science Award, co-PI together with Jennifer Irvin (Chem) and Byounghak Lee (Phys), \$100,000.
2. "MRI: Development of a Complex Topography Photolithography Tool for Micro-Patterning on Non-Flat Substrates", NSF-MRI 0923506 grant, \$99,263 (PI together with Dan Tamir (CS) and Kumar Pandey (EE)).
3. "Measurements of semiconductors in support of MPA-11 organic materials", Contract for Los Alamos National Laboratory, Summer 2008, \$32,613.
4. "Inter-American Materials Collaboration: Modeling and Testing the Effects of Texture and Plastic Deformation on the Magnetic Properties of Polycrystalline Ferromagnetic Materials", \$28,000, (NSF, co-PI together with Martin Sablik), Fall 2006.
3. "Effects of Athermal Annealing on High-k Gate stacked MosCAPs and MosFets", \$100,000 (THECB-ARP, co-PI together with Dave Donnelly and Jack Lee), 2006-2007.

4. "NOISE2: Real time Noninvasive Optical Imaging by Speckle Ensemble (=NOISE) on biological tissues", \$20,000, (PI: contract with Advanced Incubator Inc. Austin).
5. "Solar simulator equipment proposal", 2004, estimated value equipment 10K, DOE, ERLE program (PI).
6. "Delsa Particle Analyzer", 2004, estimated value equipment 10K, DOE, ERLE program (PI).
7. "Microscopic analysis of magneto-resistive sensors for probe recording", (together with Cock Lodder and Leon Abelmann), 7,687, STW-werkbezoekregeling (PI, Dutch NSF).
8. "Effects of Chemical Mechanical Planarization on Electrical Properties of Low-k Materials", \$130,000, THECB-ARP, (co-PI together with Heather Galloway), Fall 2001.
9. "Research of the Optical Properties of Mo₂C", \$2,160, (PI: contract with Innovative Materials Group Inc., 1 Linquist, San Antonio, TX 78248) Summer 2002.
10. Travel and lodging grant, NHMFL, Summer 2001.
11. "The Elasto-Magneto-Optical Properties of Nickel and NiFe Alloys", \$37,878, Research Corporation, Spring 1999 – Fall 2003.
12. Travel and lodging grant, NHMFL, Summer 1998.

2. Submitted, but not Funded, External Grants and Contracts:

In addition to the awarded proposals I submitted 16 proposals to NSF, 6 proposals to the THECB, and one proposal to DOE. One NSF pre-proposal was encouraged, and two NSF proposals are still pending. All other were declined.

3. Funded Internal Grants and Contracts:

13. Half year supplement for sabbatical at LANL 2008-2009.
14. "Lehman internship Daniel Palmer", Summer 2007.
15. "Laser Beam Shaping using Imaging Techniques", \$16,000, Research Enhancement, 2008, (together with Dan Tamir(CS)).
16. "Unidirectional Doping of Silicon Particles for Solar Cells", \$7,400, TxState Research Enhancement Program, Spring 2005-Summer 2006.
17. "Device and Process Simulator for semiconductor education and research", \$14,000, 2005, (9K from line-item budget Prof. Gene Stouder, and 5K from Department of Physics).
18. "A Deep Level Transient Spectroscopy Setup for the characterization of Semiconductor Materials and Devices", \$29,910, 2005, TxState Semiconductor Manufacturing Education and Research (line-item budget Prof. Gene Stouder).
19. "Calibration Sources and Remote Input Coupler for CV setup", \$6,325, 2005, TxState Semiconductor Manufacturing Education and Research (line-item budget Prof. Gene Stouder).
20. "Hall card, switching unit, nanovoltmeter, and current source for Van der Pauw electric transport measurement", 2005, \$13,142, TxState Semiconductor Manufacturing Education and Research, (line-item budget Prof. Gene Stouder).
21. "Influence of Stress on Magnetic Sub-Micron Structures", \$8,000, TxState Research Enhancement Program, 2000.

22. "Construction of an Ellipsometer suitable for Magneto-Optical Spectroscopy", \$8,000, TxState Research Enhancement Program, 1999.
23. "Ellipsometry and Kerr Spectroscopy", \$4,000, TxState College of Science, 1998.

4. Submitted, but not Funded, Internal Grants and Contracts:

Available upon request

D. Fellowships, Awards, Honors:

1. Cottrell College Science Award 2009.
2. Students under my supervision that received the first prize poster presentation at Texas State Undergraduate Research Conference and Mitte honors thesis form, Amanda Gregory, Kyle Smith, and Clayton Moore.
3. Finalist for the Presidential Award for Excellence in Scholarly Activities (2003)
4. Students under my supervision that received a prize for their poster presentation at TS/4CS-APS Fall meeting in October 2008: Amanda Gregory, Kyle Smith, and Clayton Moore.
5. Students under my supervision that received poster awards from the Central Texas Workshop on Semiconductor Contamination Control and Chemical Metrology: Jett Hendrix, Jacob Grimes, Fall 2002.
6. College of Science Bonus Award, 2000.
7. Student under my supervision that received a TSAPS Travel Award: Claude Garrett. Jonathan Garrett.
8. Humboldt Research Fellowship, 1995.
9. STA Fellowship, 1993 - 1995.
10. Best poster presentation, Magnetic Recording Session, International Conference on Magnetism, 1991, Edinburgh, UK.

IV. SERVICE

A. University:

1. Spring 2010: Member College Review Group College of Science.
2. Fall 2009 – Spring 2010: Member search committee for Physics faculty.
3. Fall 2009: Chair College of Science Curriculum Committee.
4. Fall 2009: 2009-2010 Common Experience Theme Honor's program: hosted LBW tour.
5. Spring 2008: Member College Review Group College of Science.
6. January 2008: reviewer NSF nanomanufacturing program CCM
7. February 2008: Departmental host Scholars Day.
8. Fall 2007: Member Student Commencement Speaker Committee meeting.
9. 2007: Member search committee for two Electrical Engineering faculty
10. 2007: Member laser safety committee.
11. 2007: Member search committee for two Physics faculty
12. Fall 2007: Member Student Commencement Speaker Committee meeting.
13. 2007: Department representative for the course curriculum committee of the College of Science.
14. 2006: Chair chair-search committee Department of Physics.
15. 2006: Member faculty search committee Department of Physics
16. 2006: Member search Committee of the director of the School of Engineering.
17. January 2006: Member of College Review Group College of Science
18. 2006: Department representative for the course curriculum committee of the College of Science. 2005: Department representative for the course curriculum committee of the College of Science. 2005: Member of College Research Committee College of Science
19. February 2005: Member of TxState scholarship interview team for the school of Science; Member of the University Scholar Committee for the College of Science.
20. 2004: Completed Laboratory Safety Institute's Lab Safety Training Program
21. Active Coach for the SMTEI and Bridges programs, (3 teachers and 1 community college student).

B. Departmental:

1. Spring 2010: Chair Materials-Physics program evaluation committee.
2. Summer – Fall 2009: Acting chair department of Physics in absence of Dr. Donnelly
3. Fall – 2009: Cleaned out RFM1208 and helped cleaning out RFM2226
4. Spring 2008: Departmental host scholars weekend.
5. Spring 2008: Departmental host visit San Marcos middle school
6. Summer 2007: Member clean out team Supple 102
7. Summer 2007: Host for FBI visit department of Physics
8. Spring/Summer 2007: Acting chair department of Physics in absence of Dr. Donnelly
9. Summer 2007: Departmental contact person Ubiquitous Technologies Inc.
10. Summer 2007: Departmental host visit Kylee Stouder
11. Summer 2007: Implementation of new laser safety rules in Department of Physics
12. 2007: Member of the space committee of the Department of Physics
13. Spring 2007: Participant SPS Texas State with presentation by Amanda Gregory, Kyle Smith, and Clayton Moore.
14. February 2007: Scholars Days, tour guide Department of Physics
15. September 2005: Departmental presentation for Scotland-Texas meeting.
16. May 2005: Physics tour and participation in NASA visit.

17. March 2005: Physics tour and presentation JPL visit.
18. March 2005: Physics tour and presentation Heliovolt visit.
19. My students and I refurbished and actually put to work equipment worth more than \$130,000 which was donated to our department by Lucent Technologies, AMD, and Motorola.
20. Organizer of the Physics Seminar Series (2001 and 2002); Co-organizer (together with Heather Galloway) of the SWT Physics Summer Seminar Series, 1998, 1999 and 2000.
21. Fall 2005: Host foreign exchange student from the University of Twente (Vincent Sombroek) December 2004: presentation at visit from Shimane delegation.
22. Fall 2004: Member sub-committee that reviewed the contents of the introductory physics sequence.
23. Summer 2004: Host foreign exchange student of the University of Twente (Hans Willem ten Brinke)
24. Summer 2004: Organizer of summer research seminar series.
25. Spring 2004: Junior Scholars Weekend.
26. January 2004: presentations at lab tours at visits of Shimane-prefecture delegation, and Sharp delegation (together with Greg Spencer).
27. September -December 2003: Move of the following labs to the new building: optical characterization lab, electronics lab, vibrating sample magnetometer, laser beam writer.
28. October 2003: Physics host for high school counselors visit of the Physics Department (together with Victor Michalk).
29. Development of a Web site for equipment manuals:
<http://uweb.txstate.edu/~wg06/manuals/manuals.htm>
30. I took my whole Solid State Physics class to the Florida Section American Vacuum Society meeting (together with Carlos Gutierrez). I took both my Applied Electronics class and Modern Physics 2 class to the Semiconductor Contamination Control and Chemical Metrology workshop (2002).
31. Member of the faculty search committees at the Department of Physics and the Department of Technology; active member of physics ATP-group, active member of the Materials Physics Program group, active member of the Semiconductor Initiative group.
32. Hosted and/or toured various groups through our department and the microfab including the students of Harlandale High School (2000), McOllum High School (2000), secondary and high school teachers of Pflugerville (2001), secondary school students of Austin ISD, and science teachers of Pflugerville ISD (2001).

C. Community:

1. December 2003: two day workshop at the Edgewood Academy (together with Gregory Hall) Member of the San Marcos High School Academies Advisory Board;
Organizer of SWT Lecture Series San Marcos High School;
Organizer Lab-Fab course San Marcos High School;
2. Organizer of science pep rallies at the Math and Science Academy in San Antonio, 1999, 2000 and 2001.
3. Judge at the Texas State Science Fair.

D. Professional:

1. 2009-2010: Chair-elect, Texas Section American Physical Society.
2. Fall 2009: DOE reviewer for SBIR program, DOE reviewer for Tax Incentive program, DOE panel reviewer for Tax Incentive program (all in solar energy).

3. Fall-2009: Local organizing Committee TSAPS-Fall meeting organized at TxState University.
4. Summer-Fall 2008: Organization Committee combined 4CS-TS APS Fall 2008 meeting.
5. 2008-2009: Vice-Chair, Texas Section American Physical Society.
6. Session chair plenary session TSAPS Fall meeting, El Paso.
7. Spring 2008: Reviewer for the NSF- Nanomanufacturing Unsolicited Proposal Panel.
8. February 2007: Reviewer for NSF NER program.
9. Reviewer: Phys. Rev. Lett, Phys. Rev. B, IEEE Trans on Magn., Superconducting Science and Techn.
10. October 2005: Chairman AAPT II session during the joint TSAPS, TSAAPT, and TSSPS Fall 2005 meeting in Houston.
11. Reviewer for *Cryogenics*, *Physical Review Letter*, *Physical Review B*, *IEEE Trans on Magnetics*, *J. Appl. Phys*, *IOP*, the CCLI-program of NSF, the CGP-program of CRDF, the NHMFL in-house research program, the Research Enhancement Program of TxState (2x), and the MBRS-SCORE of the University of Texas at San Antonio, TX.
12. February-May 2005 member nanotechnology STATT Technology Workgroup of the State of Texas.
13. November 2004: reviewer PIDPP.
14. Session chairman of the Magneto-Optical Session of the international MMM Conference, (Magnetism and Magnetic Materials), 2002, Tampa, FL.

E. Organizations:

1. Honorary:

N/A

2. Professional:

Member American Physical Society

F. Services Honors and Awards:

1. 2007: Dean Nominee for the Presidential Award for Excellence in Service.