STANLEY A. CHEYNE
Updated: 4/16/2026

Personal Information

Office phone: (434) 223-6178
Cell phone: (434) 315-3587
Email: scheyne@hsc.edu

Degrees and Education

B.A. Physics Hendrix College, Conway, AR, 1984

M.A. Physics University of Mississippi, University, MS 1986

Ph.D. Physics University of Mississippi, University, MS, 1989

Current Employment Record

Professor of Physics and Astronomy, Hampden-Sydney College, 2003-present.
Associate Professor of Physics and Astronomy, Hampden-Sydney College, 1996-2003.
Assistant Professor of Physics and Astronomy, Hampden-Sydney College, 1990-1996.
Chair, Department of Physics and Astronomy, Hampden-Sydney College, 1998 – 2003, 2007-8.

Prior Employment Record

Postdoctoral Fellow in the George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, Georgia, 9/89-7/90

Instructor for courses entitled Descriptive Astronomy 101 and 102 in the Department of Physics and Astronomy, University of Mississippi, University, Mississippi, 6/89-8/89

Research Assistant in the Department of Physics and Astronomy, University of Mississippi, University, Mississippi. Research involved experimental and theoretical investigations in nonlinear optoacoustics, 1/85-5/89

Teaching assistant and laboratory instructor for courses entitled Descriptive Astronomy 101 and 102 in the Department of Physics and Astronomy, University of Mississippi. Duties included teaching observations, in-class lectures, and developing an in-class astronomy laboratory

Data analyst in atmospheric physics in the Department of Physics and Astronomy, University of Mississippi, University, Mississippi. Analyzed data of lightning strokes taken over the Gulf of Mexico, 7/84-8/84

Professional Affiliations

Member of the Acoustical Society of America

Development Efforts at Hampden-Sydney

1992: Submitted a grant proposal to the Research Corporation ($43,000)-denied.

1993: Resubmitted of same proposal to the research corporation ($39,900)- denied.

1994: Submitted grant proposal to the National Science Foundation ($40,000)- denied.

1996: National Science Foundation Instrumentation Grant Awarded - Computer Applications in Introductory Astronomy and Physics. $37,800. This was used to purchase 17 Power Macintosh computers, 2 laser printers, 2 color inkjet printers, and relay hardware to equip the Astronomy and Meteorology laboratories.

2002: National Science Foundation grant $34,635 was awarded to purchase 17 computers, 3 printers, and networking hardware for the meteorology and astronomy laboratories.

2008: Optical Acoustic sensors-$13,000. Dr. McDermott and I were contracted to design and build an optical acoustic sensor for a company located in Maryland.

2013: $10,000 from Huff foundation to Energy Research Group

2014: $10,000 from Huff foundation to Energy Research Group

2014: $150,000 from Huff foundation to Energy Research Group to build "Energy Research Building"

Summer Grants awarded at HSC

1996: Thermoacoustics - $2,500
1997: Thermoacoustics - $2,500
1998: Optoacoustics - $2,500
1999: Optoacoustics-$2,600
2001: Optoacoustics-$2,800
2002: Optoacoustics and Fiber optic interferometer-$1500
2003: Optoacoustics in liquids and gases-$2,800
2004: Optoacoustics in gases and acoustic characterization of bubbly liquids-$2,800
2008: Optoacoustics in liquids and gases-$2,800
2011: Began work on writing a Physics text-$3000
2012: Continued work on writing a Physics text-$3000
2013: Continued work on writing a Physics text.-$3000
2014: Continued work on Physics text - $3000
2015: Completed Physics text - $3,000
2016: Phase speed measurements in a bubbly liquid using a Transfer Function Technique $3,000

2017: Phase speed measurements in a bubbly liquid using a Transfer Function Technique $3,000
2018: Experimental investigation of sonofusion via acoustic cavitation $3,000
2019: Experimental investigation of sonofusion via acoustic cavitation $3,000
2020: Sound speed measurements in ethanol/water solutions $3,000
2021: Sound speed measurements in ethanol/water solutions $3,000
2022: Phase speed measurements in a bubbly liquid using a Transfer Function Technique $3,000
2023: Phase speed measurements in a bubbly liquid using a Transfer Function Technique $3,000
2024 – Acoustic Hydrometer $3000
2025 – Acoustic Hydrometer $3000
2026 – Acoustic Hydrometer (proposal submitted) $3000

Other internal Funding

1999: Symposium on Global Warming. Wrote proposal and funded. $2,500
2001: Symposium on the Science of Sports. Wrote proposal and funded. $2,500

Courses Taught

Meteorology - Physics 108
Meteorology Lab - Physics 148
Introduction to Astronomy I and II- 105, 106
Astronomy Lab I and II - Physics 145, 146
General Physics I and II - Physics 111, 112
Problems in General Physics I and II - Physics 121, 122
General Physics I and II with Calculus - Physics 131, 132
Physics of Sound – Physics 135
Physics of Sound (EL-off) – Physics 135
General Physics Lab I and II - Physics 151, 152
How Things Work - FRSM 185
Classical Mechanics - Physics 211
Electricity and Magnetism I - Physics 212
Mathematical Methods in Physics - Physics 234
Intermediate Laboratory I – Physics 251, 252
Modern Physics - Physics 311
Quantum Mechanics - Physics 312
Advanced Laboratory - Physics 351, 352
Thermodynamics and Statistical Physics - Physics 411
Theoretical Physics I and II - Physics 421, 422
Honors Directed Reading - Physics 490
Honors Independent Research - Physics 495

Publications

1. Henry E. Bass and Stanley A. Cheyne, “Effect of Laser Pulse Energy on Optoacoustic Conversion in Liquids,” (A) J. Acoust. Soc. Am. **80**, p. S120 (1986).

2. Charles H. Thompson, Stanley A. Cheyne, Henry E. Bass, and Richard Raspet, “Optoacoustic Observation of Internal Relaxation in Liquid CS_2,” J. Acoust. Soc. Am **85** (6) 2405 (1989).

3. Stanley A. Cheyne and Henry E. Bass, “Observation of Optoacoustic Amplitude in CS_2 at High Input Energies,” (A) J. Acoust. Soc. Am. **86**, p. S109 (1989).

4. Stanley A. Cheyne, “Experimental and Theoretical Study of Nonlinear Optoacoustics,” Ph.D. Dissertation, University of Mississippi, August 1989.

5. Stanley A. Cheyne and Henry E. Bass, “A Study of Optoacoustic Signal Amplitude in Weakly Absorbing Fluids,” J. Acoust. Soc. Am. **88** (1) p. 264 (1990).

6. Stanley A. Cheyne and Henry E. Bass, “Observation of Optoacoustic Amplitude in CS_2 at High Input Energies,” J. Acoust. Soc. Am. **88** (4) p. 1842 (1990).

7. Stanley A. Cheyne, Chiu Chau, and Jacek Jarzynski, “Design and Performance of a Heterodyne All-fiber Laser Doppler Velocimeter,” (A) J. Acoust, Soc. Am. **88**, p. S66 (1990).

8. Stanley A. Cheyne and Ron A. Roy, “Sound Speed Measurements in a Bubble Cloud,” (A) J. Acoust. Soc. Am. **90,** p. 2318 (1991).

9. Stanley A. Cheyne, Carl A. Stebbings, and Ron A. Roy, “Acoustic Phase Velocity Measurements in Bubbly Liquid Using a Fiber Optic Laser Doppler Velocimeter.” (a) J. Acoust. Soc. Am. **92**, p. 2454 (1992).

10. Stanley A. Cheyne, Carl T. Stebbings, Ronald A. Roy, “Phase velocity measurements in bubbly liquids using a fiber optic laser interferometer,” J. Acoust. Soc. Am. **97**(3) p. 1621 (1995).

11. Stanley A. Cheyne and John M. Long, “A Study of Optoacoustics at the Vaporization Threshold of Liquid Carbon Disulfide,” (A) J. Acoust. Soc. Am. **104**, p. 95 (1998).

12. Stanley A. Cheyne, "Getting a Charge from Coffee," The Physics Teacher, Jan. 2000.

13. Patrick J. Martin,, Stanley A. Cheyne, Walter C. McDermott, “Calculating the attenuation of sound in a bubbly liquid using the Kramer-Kronig Relations,” Proceedings of Virginia Academy of Sciences (2001).

14. Stanley A. Cheyne, “Phase velocity measurements in a bubble swarm using a fiber optic sensor near bubble resonant frequency,” (A) J. Acoust. Soc. Am. **112**, p. 2269 (2002).

15. Stanley A. Cheyne and Walter C. McDermott, “Photoacoustic study of gaseous carbon disulfide with a pulsed nitrogen laser,” (A) J. Acoust. Soc. Am. **112**, p. 2440 (2002).

16. Stanley A. Cheyne and John M. Long, "Delay of the propagation time of an optoacoustic pulse at the vaporization threshold of liquid Carbon Disulfide," Acoust. Res. Lett. Online **4**(3) p.95 (2003).

17. Stanley A. Cheyne, Walter C. McDermott, Matthew D. Rannals, Joshua E. Vaughan, “Concentration determination of a binary mixture of air and carbon disulfide gas using optoacoustics,” Acoust. Res. Lett. Online **5**(2) p. 7-12 (2004).

18. Stanley A. Cheyne and Robert H. Hembree, “Acoustic phase speed measurements in a bubbly liquid,” (A) J. Acoust. Soc. Am. **122(5)** p. 2292 (2007).

19. Stanley A. Cheyne “Optoacoustics in Liquids and Gases,” J. Acoust. Soc. Am. **124**(4) p. 2453 (2008).

20. Stanley A. Cheyne , “Optoacoustics in liquids and gasses: The work of Henry E. Bass,” POMA **5**, 045003 (2008).

21. Stanley A. Cheyne and Walter C. McDermott, “Sound speed measurements in air using a variable sound source and tubes,” J. Acoust. Soc. Am. **125**(4) p. 2625 (2009).

22. Stanley A. Cheyne, “A brief history and acoustical analysis of the Great Highland Bagpipe,” J. Acoust. Soc. Am. **125**(4) p. 2652 (2009).

23. Stanley A. Cheyne and Walter C. McDermott, “Standing wave measurements in tubes,” J. Acoust. Soc. Am. **128**(4) p. 2445 (2010)

24. Stanley A. Cheyne and Walter C. McDermott, “Standing wave measurements in tubes,” J. Acoust. Of Amer., POMA **11** pp. 25, Dec. 2011.

25. Carson T. Maki and Stanley A. Cheyne, “Anomalous Acoustics in Crawley Forum: An Introductory Acoustical Analysis of Crawley Forum,” Hampden-Sydney College J. of Sciences, Vol. III, p.63-67 (2014).

26. Stanley A. Cheyne, Hugh O. Thurman, Walter C. McDermott and Charles G. Kelley, “Determination of the phase speed in a bubbly liquid at the single bubble resonance in an impedance tube using a transfer function technique,” J. Acoust. Soc. Am. **137**, 2294 (2015)

27. Charles E. Kinzer, Walter C. McDermott and Stanely A. Cheyne, “Experimental investigation of individual musicians on tonal quality for saxophones and clarinets,” J. Acoust. Soc. Am. **137**, 2339 (2015).

28. Charles E. Kinzer; Stanley A. Cheyne; Walter C. McDermott, "Investigation of acoustical spectral analysis to gain a better understanding of tone development in single reed instruments," J. Acoust. Soc. Am. **138**, 1772 (2015).

29. Stanley A. Cheyne, H O. Thurman, Cecil M. Tiblin, "Phase speed measurements of a bubbly liquid in impedance tubes using a transfer function technique," J. Acoust. Soc. Am. **140**, 3122 (2016).

30. Charles E. Kinzer; Stanley A. Cheyne; Walter C. McDermott, "Tonal characteristics of saxophone mouthpieces: a comparison," J. Acoust. Soc. Am. **141**, 3875 (2017).

31. Stanley A. Cheyne, "Sound speed measurements in Kentucky bourbon whiskey," J. Acoust. Soc. Am. **145,** 1923 (2019).

32. Stanley A. Cheyne, H. O. Thurman, Cecil M. Tiblin, "The inferred determination of the phase speed of a bubbly liquid of less than 2m/s by using a transfer function technique," J. Acoust. Soc. Am. **146**(3), 1834 (2019).

33. Stanley A. Cheyne, "Sound speed measurements in ethanol/water solutions and Kentucky bourbon whiskey," POMA. 36, 045008 (2021)

34. Stanley A. Cheyne, H. O. Thurman, R. G. Holt, "Phase speed and attenuation determination of a monodisperse liquid at the single bubble resonance using a single and two microphone transfer function method," J. Acoust. Soc. Am. 152(4), A36 (2022).

35. Stanley A. Cheyne, H. O. Thurman, R. G. Holt, "Methods of sound speed and attenuation measurements in bubbly liquids," in J. Acoust. Of Amer., POMA 60, Dec. 2025.

Invited Talks

1. Stanley A. Cheyne, "Optoacoustics in Liquids and Gases," to the Acoustical Society of America in Miami, FL (November 2008).

2. Stanley A. Cheyne and Walter C. McDermott, "Sound speed measurements in air using a variable sound source and tubes," to the Acoustical Society of America in Portland, OR (May 2009).

3. Stanley A. Cheyne, "A brief history and acoustical analysis of the Great Highland Bagpipe," to the Acoustical Society of America in Portland, OR (May 2009).

4. Stanley A. Cheyne and Walter C. McDermott, "Standing wave measurements in tubes," to the Acoustical Society of America in Cancun, MX (Nov. 2010).

5. Charles E. Kinzer; Stanley A. Cheyne; Walter C. McDermott, "Investigation of acoustical spectral analysis to gain a better understanding of tone development in single reed

instruments," to the Acoustical Society of America in Jacksonville, FL (Nov. 2015).

6. The Acoustical Society of America publications featured my paper, "Sound speed measurements in ethanol/water solutions and Kentucky bourbon whiskey", published in

[*Proceeding of Meetings on* Acoustics, on their podcast, "Across Acoustics" (https://acrossacoustics.buzzsprout.com/1537384/episodes/11706707-sound-speed-in-bourbon). I was invited and agreed to be interviewed discussing the paper. It appeared in the fall of 2022.

Papers Presented

1. Henry E. Bass and Stanley A. Cheyne, "Effect of Laser Pulse Energy on Optoacoustic Conversion in Liquids," Mississippi Academy of Science (1987).

2. Henry E. Bass and Stanley A. Cheyne, "Effect of Laser Pulse Energy on Optoacoustic Conversion in Liquids," University of Mississippi (1987)

3. Stanley A. Cheyne, "Nonlinear Optoacoustics in Liquids," University of Mississippi (1989)

4. Stanley A. Cheyne, "Nonlinear Optoacoustics in Liquids," Georgia Institute of Technology (1989)

5. Stanley A. Cheyne, "Optoacoustics in Liquid CS2: A Quantitative Approach," Georgia Institute of Technology (1989)

6. Stanley A. Cheyne and Ron A. Roy, "Sound Speed Measurements in a Bubble Cloud," (A) J. Acoust. Soc. Am. **90,** p. 2318 (1991).

7. Stanley A. Cheyne, Carl T. Stebbings, and Ron A. Roy, "Acoustic Phase Velocity Measurements in a Bubbly Liquid Using a Fiber Optic Laser Doppler Velocimeter," (A) J. Acoust. Soc. Am. **92**, S1(1992).

8. Stanley A. Cheyne and John M. Long, "A Study of Optoacoustics at the Vaporization Threshold of Liquid Carbon Disulfide," (A) J. Acoust. Soc. Am. **104**, S1 (1998).

9. Stanley A. Cheyne, "An Investigation of the Vaporization of a liquid using Laser-induced Sound," University of Central Arkansas, Dept. of Physics and Astronomy (2001).

10. Stanley A. Cheyne, "Phase velocity measurements in a bubble swarm using a fiber optic sensor near bubble resonant frequency," (A) J. Acoust. Soc. Am. **112**, S1 (2002).

11. Stanley A. Cheyne and Robert H. Hembree, "Acoustic phase speed measurements in a bubbly liquid," (A) J. Acoust. Soc. Am. **122(5)** p. 2292 (2007).

12. Stanley A. Cheyne "Optoacoustics in Liquids and Gases," J. Acoust. Soc. Am. **124**(4) p. 2453 (2008).

13. Stanley A. Cheyne and Walter C. McDermott, "Sound speed measurements in air using a variable sound source and tubes," J. Acoust. Soc. Am. **125**(4) p. 2625 (2009).

14. Stanley A. Cheyne, "A brief history and acoustical analysis of the Great Highland Bagpipe," J. Acoust. Soc. Am. 125(4) p. 2652 (2009).

15. Stanley A. Cheyne and Walter C. McDermott, "Standing wave measurements in tubes," J. Acoust. Soc. Am. **128**(4) p. 2445 (2010)

16. Stanley A. Cheyne, Hugh O. Thurman, Walter C. McDermott and Charles G. Kelley, "Determination of the phase speed in a bubbly liquid at the single bubble resonance in an impedance tube using a transfer function technique," J. Acoust. Soc. Am. **137**, 2294 (2015).

17. Stanley A. Cheyne, "A Tale of Two Bubbles," presented at Hampden-Sydney College (2016).

18. Stanley A. Cheyne, "Sound speed measurements in Kentucky bourbon whiskey," J. Acoust. Soc. Am. **145**, 1923 (2019).

19. Stanley A. Cheyne, H. O. Thurman, R. G. Holt, "Phase speed and attenuation determination of a monodisperse liquid at the single bubble resonance using a single and two microphone transfer function method," J. Acoust. Soc. Am. 152(4), A36 (2022).

20. Stanley A. Cheyne and Phillip Anderson "The design and performance of an ultrasonic acoustic proof hydrometer," J. Acoust. Soc. of Amer. (Dec. 2025 – 189th meeting of the Acoustical Society of America in Honolulu, HI)

21. Stanley A. Cheyne, R G. Holt, and H O. Thurman, "Reflections of a bubbly liquid: Staying dry while measuring the void fraction" J. Acoust. Soc. of Amer. (Dec. 2025 – 189th meeting of the Acoustical Society of America in Honolulu, HI)

Works in Progress

Impedance tube measurements in a bubbly liquid

Design, construction, and testing of an ultrasonic hydrometer

Stanley A. Cheyne, R G. Holt, and H O. Thurman, "Phase speed and attenuation of a bubbly liquid using a transfer function method." This paper was submitted to the Journal of the Acoustical Society of America Express Letters in 2025 and is currently under revision. It should be resubmitted during the spring of 2026.

Other Professional Activity

1. Research at the National Center for Physical Acoustics; Summer 1991.

2. Research during the summer of 92 in conjunction with the National Center for Physical Acoustics and the Applied Physics Laboratory in Seattle, WA.
3. Submitted a grant proposal to the Research Corporation $43,000 - 1992.
4. Resubmitted of same proposal to the research corporation (1993).
5. Submitted grant proposal to the National Science Foundation (1993).
6. Attended Faculty enhancement workshop on lasers at the University of Tennessee at Knoxville (Aug. 93).
7. Research at the National Center for Physical Acoustics; Summer 94.
8. Attended Faculty enhancement workshop on lasers at Calvin College (Aug. 94).
9. Research at the National Center for Physical Acoustics; Summer 95.
10. Awarded NSF Grant - $37,800 - Computer Applications in Physics and Astronomy.
11. Research at the National Center for Physical Acoustics; Summer 96.
12. HSC Summer Grants 1996-1999, 2001-2004.
13. See community Service (first and second items)
14. Peer reviewer for the Journal of the Acoustical Society of America
15. Invited by the National Science Foundation to review proposals (1999, 2003)
16. Organized Climate Change Symposium (1999).
17. Passed the test at the Jefferson National Laboratory to become a user of the Free-Electron laser.
18. Wrote proposal to fund Sports Symposium-Funded $2500-(2001)
19. Awarded NSF Grant - $34,635 An Undergraduate Computational Laboratory for Meteorology and Astronomy.
20. Attended one Acoustical Society of America meeting per year. This year it was in Providence, RI.
21. Dr. McDermott, Mark Goodin (Physics major, 06), and I visited the Office of Naval Research and used their large bubble chamber to make measurements related to my bubble characterization research.
22. Attended the Acoustical Society of America meeting in Salt Lake City, UT in June of 2007.
23. Attended and present a paper at the Acoustical Society of America meeting in New Orleans, LA in November of 2007.
24. Attended and presented an invited paper at the Acoustical Society of America meeting in Miami, FL in November of 2008.
25. Mike McDermott and I were ask to design and construct an optical sensor to measure sound for a company located in Maryland. We are still currently working on the project.
26. Attended and presented 2 invited papers at the Acoustical Society of America meeting in Portland, OR in May 2009.
27. Attended and presented an invited paper at the Acoustical Society of America meeting in Cancun, MX in Nov. 2010.
28. Attended the 21st International Congress on Acoustics in Montreal, Canada in June 2013.
29. Attended the 168th meeting of the Acoustical Society of America meeting in Indianapolis, IN in Oct. 2014.
30. Attended and presented a paper at the 169th meeting of the Acoustical Society of America meeting in Pittsburg, PA in May 2015.
31. Attended the 170th meeting of the Acoustical Society of America meeting in Jacksonville, FL in Nov. 2015.
32. Attended the 172nd meeting of the Acoustical Society of America meeting in Honolulu, HI. This was also the 5th Joint meeting with the Acoustical Society of Japan. Dec. 2016

33. Attended the 3rd joint meeting of the Acoustical Society of America and the European Acoustics Association in Boston, MA in June 2017.
34. Attended the 177th meeting of the Acoustical Society of America meeting in Louisville, KY.
35. Attended the 183th meeting of the Acoustical Society of America meeting in Nashville, TN. Dec. 2022.

36. Attended and presented two papers at the 189th meeting of the Acoustical Society of America meeting in Honolulu, HI. This was also the 6th Joint meeting with the Acoustical Society of Japan. Dec. 2025

College Service

Energy Conference – Served on committee to plan Energy conference to be held in Fall 06.
Search Committee – History Department Spring 2005, Spring 2006, Spring 2019
Benefits and Review Committee
Honors Council Faculty Affairs Committee
Presidential Search Committee (Bortz)
Chair of Department of Physics and Astronomy – 6 years
Pre-Health Committee
Athletic Committee
Faculty Representative for the Society of Physics students.
Self-Study on Coeducation
Freshman advisor
Student Affairs Committee
Parking Committee
Participate in prospective student weekends
Made sound level measurements in Gilmer Hall, Morton Hall, Johns Auditorium, and in the Biology stockroom. As a consequence of the Gilmer measurements, a soundproof enclosure was built which solved the problem. Morton Hall also had modifications made to the HVAC system.
International Studies Committee
Faculty mentor
Faculty Representative to the Presidential Council
Worked with President Howard on a development project
Faculty Affairs Committee: Chair 2014-2015 academic year
Housing Committee
Grader of Rhetoric Exams
Faculty Liaison to the Student Court
Faculty Affairs Committee
Human research Committee 2019-2022
Admissions Committee
Promotion & Tenure Committee 2019-2022
Compass Committee 2023-2026

Community Service

I was one of ten Virginia Physics professors chosen to teach a continuing education course to K-12 teachers. The work included a 6 hour training workshop in Charlottesville, VA on 10/8/94,

and the teaching of two-8 hour classes (all day on Saturdays) on 10/15/94 and 11/5/94 on Sound. I was also selected to teach a second course on Light in the same format as the first. This was taught the following semester on. We were compensated $1,000 per class. This was done with the approval of the Dean.

I organized and underwrote 2 marathons during the Falls of 1997 and 1998. I feel the Hampden-Sydney Marathon serves the College in several ways. One student told me after volunteering for the first race, "This is the first time I've ever felt a part of this community." It is an event that brings nearly 70 volunteers (faculty, staff, and students) together for a day. In addition, the 250 runners who participate in the race are generally the type who might send their son to HSC. Finally, the marathon is one that promotes a healthy lifestyle.

I have interacted with the HSC Cross Country team by running with them and assisting the head coach with meets. I feel it fosters good relations and respect with students when student athletes are challenged by professors not only intellectually but also in their own sport.

I visit the local schools on a regular basis and teach simple Physics' principles by doing demonstrations.

I have participated in holding public astronomical observation sessions for the community at the College's observatory.

I have played bagpipes for Commencement (2024, 2025), Senior Walk for the football team (November 2025), Opening Convocation, Honors Convocation, and Veteran's Day Service and have played at other community events.

Mike McDermott, Hugh Thurman, Irvin Robertson and I did two physics demonstration educational shows for 600 elementary students in Lynchburg, VA. (May 2007).

I visited Prince Edward Elementary and did physics demonstrations for two second grade classes. (October 2007).

Celtic Music Night (organized 4 different events)

I arranged, organized and sponsored a trip for the 3rd graders (225 students) of Prince Edward County to attend our Physics demonstration show at Hampden-Sydney College. Mike McDermott, Hugh Thurman, Irvin Robertson and I participated in the two shows (October 2008).

Served on the organizing committee for the Longwood Center for Visual Arts Gala 2007, 2009, 2011, 2013, 2016, 2018.

Co-Chaired the 2009 and 2016 Gala for the Longwood Center for Visual Arts

Serve on the local Young Life Committee, hosted the Young Life meeting for high school students (up to 60 per week) at my home for 6 years, helped in fund raising efforts.

Create and send weather forecasts for the local community.

Physics lecture and demonstrations (1 hour event) for Alumni Weekend: May 2020, May 2021, May 2022, May 2023, May 2024, May 2025, October 2025.

Honors and Awards

1. National Science Foundation (NSF) Grant - $37,800 - Computer Applications in Physics and Astronomy - May 1996.
2. Cabell Teaching award - May 1998.
3. I was invited to serve as a review panelist for the National Science Foundation to read proposals submitted to NSF. February 1999.
4. I was awarded a grant to organize a Climate Change Symposium which was held in February of 1999.
5. Awarded an Elliott Chair-July 2000-June 2003
6. Wrote proposal to fund Sports Symposium: Funded -$2500. It was held in 2001.
7. J. B. Fuqua Teaching Award – May 2002.
8. National Science Foundation (NSF) Grant - $34,635- An Undergraduate Computational Laboratory for Meteorology and Astronomy-May 2002.
9. Gwathmey Trust: Matching funds of $17,000 for the NSF Grant in item 8.
10. I was invited to serve as a review panelist for the National Science Foundation to read proposals submitted to NSF. January 2003**.**
11. Invited talk at the 2008 Acoustical Society of America meeting in Miami, FL.
12. Two invited talks at the 2009 Acoustical Society of America meeting in Portland, OR.
13. An invited talk at the 2010 Acoustical Society of America meeting in Cancun, MX.
14. An invited talk at the 2015 Acoustical Society of America meeting in Jacksonville, FL.
15. Awarded a 6-year Elliott Chair-July 2019-2025.

Student Research

1. Spring 91 – A student developed two fiber optic sensors one of which was used on a later project.

2. Spring 92 – A student investigated the mechanisms involved in optoacoustic generation and configured a working system consisting of a nitrogen (UV) laser, He-Ne laser, and other standard bulk optics.

3. Spring 92 – A student continued the worked that was begun by a previous student and constructed preparatory apparatus to be used in a fiber optic sensing experiment.

4. Summer 92 – A student constructed a fiber optic laser interferometer and successfully made significant measurements of acoustic properties of dispersive media.

5. Fall 92 – A student continued research using a fiber optic laser interferometer and successfully made significant measurements of acoustic properties of dispersive media. I delivered a talk of these results at the 124th meeting of the Acoustical Society of America in the Fall of 1992.

6. Spring 94 - A student constructed laser diode power supplies and temperature controllers. By the end of the semester both systems were operational. The students also used the lasers to observe the absorption spectrum of Rubidium.

7. Spring 94 - A second student constructed laser diode power supplies and temperature controllers. The students also used the lasers to observe the absorption spectrum of Rubidium.

8. Fall 94 - A student studied different holographic techniques and attempted to produce transmission and reflection holograms.

9. Fall 94 - A student studied the frictional effects of a pulley in a simple dynamical system.

10. Fall 94 – A student conducted Honors Research in Fiber optic sensors and their applications in acoustics.

11. Spring 95 – A student conducted Honors Research in Fiber optic sensors and their applications in acoustics.

12. Spring 95 - A student studied the frictional effects of a pulley in a simple dynamical system.

13. Spring 95 - A student studied different holographic techniques and attempted to produce transmission and reflection holograms.

14. Summer 95 - A student completed the measurements needed for the experiment designed to study the frictional effects of a pulley.

15. Fall 95 - A student worked on physical optics experiments using diode-lasers.

16. Fall 95 - A student studied high-speed photography as a tool for making physical measurements.

17. Fall 95 - A student conducted Honors research on acoustic properties of high temperature superconductors.

18. Spring 96 - A student completed Honors research on acoustic properties of high temperature superconductors. He graduated with Honors.

19. Fall 96 - A student conducted Honors research on the fabrication of infrared waveguides for use in IR spectroscopy experiments.

20. Spring 97 - A student completed his Honors research on fabrication of infrared waveguides for use in IR spectroscopy experiments. He graduated with Honors.

21. Spring 97 - A student conducted Thermoacoustics research investigating the effects of binary mixtures of gases on onset temperature.

22. Summer 97 - A student began a 2 summer project to construct a Carbon Dioxide Laser. This was funded by a A. D. Vining summer fellowship.

23. Summer 97 - A student conducted Thermoacoustics research investigating thermoacoustic refrigeration.

24. Summer 97 - A student conducted Thermoacoustics research investigating a thermoacoustic engine.

25. Spring 98 – A student conducted Honors research in optoacoustics. He studied the vaporization mechanism in liquid Carbon Disulfide. He discovered that the optoacoustic pulse experienced a 250ns delay in propagation time which occurred at the vaporization threshold. He graduated with Honors.

26. Summer 98 – A student continued a 2 summer project to construct a Carbon Dioxide Laser. This was funded by a A. D. Vining summer fellowship.

27. Summer 98 – A student wrote a C++ computer program to solve an optoacoustic wave equation.

28. Summer 98 – A student conducted experimental optoacoustic research.

29. Fall 98 – A student continued work on a Carbon Dioxide Laser as part of his Honors research.

30. Spring 99 –- A student continued and completed Honors research on the construction of a Carbon Dioxide laser.

31. Spring 99 – A student worked on a fiber optic interferometer to make sound speed and attenuation measurements in a bubbly liquid using newly acquired equipment.

32. Spring 00 – A student worked on phase speed and attenuation measurements and began work on a computer program to use Kramer-Kronig Relations.

33. Fall 00 – A student used a viscous fluid in an attempt to make high void fraction phase speed measurements in a bubbly liquid. In addition, he continued work on a computer program to compute the phase speed and attenuation from existing theory and programming Kramers-Kronig Relations to convert existing phase speed data to attenuation.

34. Spring 01 – A student worked work on a computer program to use Kramer-Kronig Relations. The work was presented at the 2001 Virginia Academy of Science meeting and won 2 place in the best student talk.

35. Fall 01 – A student worked on an experimental Optoacoustics experiment in gaseous Carbon Disulfied.

36. Fall 01 – A student is worked on a fiber optic laser interferometer to measure acoustic properties of bubby liquids.

37. Spring 02 – A student worked on an Honors project entitled, “Trace Detection of Gaseous Carbon Disulfied with an Optoacoustic Technique”. He completed the project and graduated with Honors.

38. Fall 02 – A student worked on an Honors project investigating gaseous Carbon Disulfied with Optoacoustics. These results were presented at the 144th Meeting of the Acoustical Society of America in Cancun, MX in the Fall of 2002.

39. Fall 02 – A student worked on developing an interferometer using modular, fiber optic cables to measure acoustic properties of bubbly liquids. These results were presented at the 144th Meeting of the Acoustical Society of America in Cancun, MX in the Fall of 2002. This work was published in a journal in January 2004.

40. Spring 03 – A student worked on an Honors project investigating gaseous Carbon Disulfied with Optoacoustics. This work was published in a journal in January 2004.

41. Spring 04 – A student worked on an Honors project investigating gaseous Carbon Disulfied with Optoacoustics using a Nd:YAG laser.

42. Summer 04 – A student is worked measured acoustic properties of bubby liquids using two high quality hydrophones.

43. Fall 04 – A student conducted research of the acoustic properties of bubbly liquids using a fiber optic interferometer.

44. Fall 05 – A student conducted research of the acoustic properties of bubbly liquids.

45. Summer 05 – A student worked on bubbly liquids.

46. Spring 06 – A student worked on bubbly liquids.

47. Fall 07 – A student worked on bubbly liquids. I will present work at a national meeting of the work. His name appears on the paper.

48. Spring 2011 – A student investigated the acoustic properties of bubbly liquids.

49. Fall 2011– a student has designed and constructed a tube to make impedance measurements in air using a standing wave ratio technique.

50. Spring 2012 – A student has designed and constructed a tube to make impedance measurements in air using a transfer function technique.

51. Fall 2012 – A student has designed and constructed a tube to make impedance measurements in a bubbly liquid using a standing wave ratio technique.

52. Spring 2013 – A student has designed and constructed a tube to make impedance measurements in bubbly liquids using a transfer function technique.

53. Spring 2013 – A student studied heat flow through a TF-form wall.

54. Fall 2014 – A student did acoustical modelling of Crawley Forum.

55. Spring 2014 – 2 students worked on developing a temperature sensor/wi-fi interface system.

56. Fall 2015 – Worked with 2 students worked on developing a temperature sensor/wi-fi interface system.

57. Fall 2015 – A student designed and constructed a tube to make impedance measurements in bubbly liquids using a transfer function technique.

58. Spring 2015 – A student took measurements using an impedance tube. The results were presented at a national meeting in May 2015.

59. Spring 2016 – A student worked on a temperature and relative humidity sensor to monitor conditions in the College's greenhouse.

60. Spring 2016 – A student did climate change research

61. Fall 2016 – A student did climate change research

62. Fall 2016 – A student worked on a temperature and relative humidity sensor to monitor conditions in the College's greenhouse.

63. Summer 2016 – A student took measurements using an impedance tube.

64. Fall 2016 – A student took measurements using an impedance tube. The results were presented by the student at an international meeting in Hawaii.

65. Summer 2020 – student worked on sound speed measurements in ethanol/water solutions.

66. Fall 2020 – student worked on sound speed measurements in ethanol/water solutions.

67. Fall 2020 – student worked on fiber optic sensors.

68. Fall 2021 – Spring 2022 – student work on architectural acoustics

69. Fall 2022 – Spark induced cavitation to detect underwater objects

70. Spring 2023 – Acoustic analysis of class rooms on campus

71. Fall 2023 – Spark induced cavitation to detect underwater objects

72. Spring 2024 – Spark induced cavitation to detect underwater objects

73. Summer 2024 – Student worked on the Nd:Yag laser and acoustic hydrometer

74. Fall 2024 – Student worked on acoustic hydrometer