Department of Physics
Monmouth College
700 E Broadway Ave
Monmouth, IL
(309) 457-2356

Education

University of Wisconsin-Madison Madison, WI
Ph.D. in Medical Physics with minor in Physics, *August 2005*
Dissertation: "Diagnostic Ultrasound Exposimetry Using a Tissue-Mimicking Liquid"
Advisor: Ernest Madsen

Grinnell College Grinnell, IA
B.A. with Honors in Physics, *May 1998*

Teaching Experience

Associate Professor with tenure Monmouth College, Monmouth, IL
Department of Physics *August 2015 – present*

Assistant Professor Monmouth College, Monmouth, IL
Department of Physics *August 2010-August 2015*

Visiting Assistant Professor DePauw University, Greencastle, IN
Department of Physics and Astronomy *August 2008 to July 2010*

CIRTL Teaching Intern University of Wisconsin-Madison, Madison, WI
May 2006 to May 2008

Adjunct Instructor of Physics Madison Area Technical College, Madison, WI
August 2004 to May 2005

Research Experience

Assistant Scientist University of Wisconsin-Madison, Madison, WI
August 2005 to August 2008

Research Assistant University of Wisconsin-Madison**,** Madison, WI
August 1999 to August 2005

Undergraduate Honors Project Grinnell College, Grinnell, IA
"Comparing Lifetimes of Tau and Anti-Tau Leptons" *August 1997 to May 1998*

Other Experience

Mathematica Technical Support Engineer Wolfram Research, Inc., Champaign, IL
August 1998 – August 1999

Research Awards

American Institute of Ultrasound in Medicine New Investigator Finalist
March 2007
Chosen of one of four finalists for this award that recognizes outstanding conference abstract submission and presentations by researchers with less than five years of independent research experience.

National Institutes of Health NRSA Training Grant
August 2002
Awarded one of six positions by the Medical Physics Department as pre-doctoral fellow on institutional training grant. Responsible for annual written and oral presentation of research to department faculty and representatives of the National Institutes of Health.

Grant Funding

nVIDIA Hardware Grant
May 2016
Awarded an nVIDIA K40 Tesla GPU Accelerator for use in modeling nonlinear ultrasound propagation. Total funding: $3,5000.

National Institutes of Health K25EB004358
July 2005 to August 2008
Principal investigator of Mentored Quantitative Research Career Development Award to obtain additional training in clinical applications of ultrasound and perform research comparing measurements of nonlinear acoustic effects to computer simulations of ultrasound propagation. Total funding: $240,000.

Recent Mentored Undergraduate Research Projects

2016-17 Academic Year
Senior Project: Sydney Ropella: “Acoustics of Trombone”
Senior Project: Khdr Eskander: “Nonlinear Ultrasound Propagation”
Senior Project: Irving Hernandez: “Water Rockets”

Summer 2016
SOfIA project: Jailene Leal, Bridgette Davey, Elizabeth Reasoner, and Jasmine Armstrong: “Physics of Fun!”

2015-16 Academic Year
Senior Project: Andy Selep: “Astrophotography”.
Senior Project: Jailene Leal: “Physics of Cheerleading”

Summer 2015
SOfIA Project: Joel Mota, Bridgette Davey, Maria Jeleva, Connor Oltman: “Playground Physics”

Summer 2014
SOfIA Project: Brandi Yoder, Brittany Book and Sofia Garcia: “Acoustic Properties of Reconstituted Powdered Milk”
Summer Research Project: Andrew Selep: “Tissue-Mimicking Ultrasound Standards”
Results were presented at the Fall 2014 Acoustical Society of America conference.
Funding for this research was provided by the Chang Go Student Research endowment.

2013-14 Academic Year
Senior Project: Cyrus Turner: “Vacuum Tube Amplifiers”

Summer 2013
SOfIA Project: Brad Dulee, Gage DeCook, Patric Crawford: “Automated Speed of Sound and Attenuation Measurements”

2012-13 Academic Year
Senior Project: Susan Ribordy: “Ultrasound Through Bone”

Summer 2012
SOfIA Project: Gage DeCook, Patrick Crawford, and Corbin Peterson: “High-Atmosphere Physics”

2011-12 Academic Year
Senior Project: Elizabeth McIntyre: “French Horn Acoustics”.
Senior Project: Quinton Guerrero: “Measuring Acoustic Backscatter”

Professional Affiliations

Member of American Association of Physics Teachers

Member of the Acoustical Society of America

Other Professional Activities

Manuscript reviewer for *Medical Physics*, *Ultrasound in Medicine & Biology*, and *IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control*

Reviewer for the annual convention of the American Institute of Ultrasound in Medicine and the Acoustical Society of America.

Member of the Output Standards Subcommittee of the American Institute of Ultrasound in Medicine

Member of the local organizing committee for the 2014 APS Prairie Section Meeting at Monmouth College, chaired two sessions of the meeting.

Publications
Peer Reviewed

Stiles T. "Ultrasound imaging as an undergraduate physics laboratory exercise" American Journal of Physics, 2014; **82**(5): 490-501.

Madsen E, Frank G, McCormick M, Deaner M, **Stiles T.** "Anechoic Sphere Phantoms for Estimating 3-D Resolution of Very-High-Frequency Ultrasound Scanners" IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2010; **57**(10): 2284-93.

Madsen E, Frank G, Hobson M, Lin-Gibson S, Hall T, Jiang J, **Stiles T**. "Instrument for determining the complex shear modulus of soft-tissue-like materials from 10 to 300 Hz" Physics in Medicine and Biology, 2008; **53:** 5313–42.

Stiles T, Madsen E, Frank G. "An exposimetry system using tissue-mimicking liquid", Ultrasound in Medicine and Biology, 2008; **34**(1):123-36.

Görig C, Varghese T, **Stiles T**, van den Broek J, Zagzebski J, Murphy C. "Evaluation of acoustic wave propagation velocities in the ocular lens and vitreous tissues of pigs, dogs, and rabbits". American Journal of Veterinary Research, 2006; **67**(2): 288-295.

Wear K, **Stiles T**, Frank G, Madsen E, Cheng F, Feleppa E, Hall C, Kim B, Lee P, O'Brien W, Oelze M, Raju B, Shung K, Wilson T, Yuan J. "Interlaboratory comparison of ultrasonic backscatter coefficient measurements from 2 to 9 MHz". Journal of Ultrasound in Medicine, 2005 **24**(9): 1235-1250.

Stiles T, Madsen E, Frank G, Diehl T. "Tissue-mimicking liquid for use in exposimetry or phantoms". Journal of Ultrasound in Medicine, 2005 **24**(4): 501-516.

Techavipoo U, Varghese T, Chen Q, **Stiles T**, Zagzebski J. "Temperature dependence of ultrasonic propagation speed and attenuation measured using transmitted and reflected pulses". Journal of the Acoustical Society of America, 2004 **115**(6): 2859-2865.

Techavipoo U, Varghese T, Zagzebski J, **Stiles T**, Frank G. "Temperature dependence of ultrasonic propagation speed and attenuation in canine tissue" Ultrasonic Imaging, 2002 **24**(4): 246-260.

Chen Q, Zagzebski J, Wilson T, **Stiles T**. "Pressure-dependent attenuation in ultrasound contrast agents" Ultrasound in Medicine and Biology, 2002 **28**(8): 1041-1051.

Selected Conference Proceedings

Stiles T. "Methods of Imaging Acoustic Nonlinearity" Poster Presentation at the Gordon Research Conference on Image Science, June 5-10, 2016, Stonehill College, Easton, Massachusetts

Stiles T and Selep A. "Experimental comparison of methods for measuring backscatter coefficient using single element transducers" Acoustical Society of America, Oct 28, 2014, Indianapolis, Indiana

Stiles T. "Laboratory Exercises for a "Physics of Medical Imaging" Course" Poster Presentation at the Gordon Research Conference on Physics Research & Education: The Complex Intersection of Biology and Physics, June 8-13, 2014, Mount Holyoke College, South Hadley, Massachusetts

Kemerling B, **Stiles T**, Sostarecz M. "Experimental and Numerical Explorations of Water Bottle Rockets" American Physical Society Prairie Section Meeting, Oral Presentation, November 10, 2012, Kansas University, Lawrence Kansas.

Stiles T, Peterson C, DeCook G, Crawford P, Selep A. "High Altitude Ballooning: A Physics Experience For Undergraduate Students" American Physical Society Prairie Section Meeting, Poster Presentation, November 9, 2012, Kansas University, Lawrence Kansas.

Stiles T, Guerrero Q. "Measuring Ultrasonic Backscatter in the Presence of Nonlinear Propagation" American Physical Society Prairie Section Meeting, Oral Presentation, November 12, 2011, University of Northern Iowa, Cedar Falls, Iowa

Courter S, Siegl E, **Stiles T.** "Inter-disciplinary, Online Approach to Learning About Teaching" Frontiers in Education, October 13, 2007, Milwaukee, Wisconsin.

Stiles T, Siegl E. "An Interactive Course on Instructional Methods for Future Faculty." 27th Annual Conference on Distance Teaching and Learning, August 10, 2007, Madison, Wisconson

Stiles T. "Modeling of Nonlinear Propagation in a Tissue-Mimicking Liquid." American Institute of Ultrasound in Medicine, March 15, 2007, New York, New York.

Stiles T, Waters K, and Frank G. "Realistic Intravascular Ultrasound Phantoms." American Institute of Ultrasound in Medicine, March 16, 2007, New York, New York.

Stiles T, Madsen E, and Frank G. "Ultrasound Exposimetry Using a Tissue-Mimicking Liquid." American Institute of Ultrasound in Medicine, March 17, 2005, Washington, D.C.

Stiles T, Madsen E, and Frank G. "Comparison of Diagnostic Ultrasound Exposure Values in Water and Tissue-Mimicking Liquid" American Association of Physicists in Medicine, July 15, 2002, Montreal, Quebec, Canada.

Stiles T, Diehl T, Shen R, Madsen E, and Frank G. "Tissue-Mimicking Liquids with Long-Term Stability" American Institute of Ultrasound in Medicine. March 14, 2001, Orlando, Florida.

Research Interests

Quantitative Ultrasound Imaging
Nonlinear propagation of ultrasound
Acoustic microscopy for biological, medical and industrial applications
Using ultrasound to asses biomechanical functions
Musical and architectural acoustics
Physics education

Institutional Service

HLC Quality Initiative Steering Committee	May 2014 – present
Assessment Faculty Committee	Aug 2013 – Aug 2016
Public Affairs Faculty Committee	Aug 2011 – Aug 2013
Pre-Health Advising Faculty Committee	Aug 2010 – present
Faculty Board of the Midwest Journal of Undergraduate Research	May 2013 – present
Faculty Mentor to the Society of Physics Students Organization	May 2012 – present

References

Dr. Christopher Fasano
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