# Andrea J. Welsh, PhD

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#### **Education**

Georgia Institute of Technology, Atlanta, GA

Nov 2012-Jul 2019

Ph.D. Physics

Advisor: Dr. Flavio H. Fenton

Georgia Institute of Technology, Atlanta, GA

August 2012-December 2013

M.S. Physics

**University of Texas-Austin**, Austin, TX

August 2011-May 2012

Graduate coursework in math and physics

Boston University, Boston, MA

August 2007-May 2011

**B.A.**, Physics and Mathematics, minor in Latin

Universitè de Genève, Geneva, Switzerland

January 2010-May 2010

Undergraduate coursework in physics

**Research Experience** 

**Postdoctoral Fellow** 

August 2020-Present

Dr. Bard Ermentrout

University of Pittsburgh, Pittsburgh, PA

**Postdoctoral Fellow** 

Fall 2019-July 2020

Dr. Flavio H. Fenton

Georgia Institute of Technology, Atlanta, GA

**Graduate Research Assistant** 

Fall 2012- Summer 2019

Advisor: Dr. Flavio H. Fenton

Coming Together: Individuals at Different Scales Working for A Common Goal

Georgia Institute of Technology, Atlanta, GA

**Undergraduate Research Assistant** 

Spring 2010

Advisors: Dr. Robert Harrington, Dr. Lawrence Sulak

CERN, Meyrin Switzerland

**Undergraduate Research Assistant** 

Summer 2009

Advisors: Dr. Michael Rissjsenbeek, Dr. Jack Stefon

SUNY Stony Brook, Stony Book, NY

**Undergraduate Research Assistant** 

May 2008 - May 2009

Advisor: Dr. Bennett Goldberg Boston University, Boston, MA

#### **Publications**

#### **Peer-Review Articles**

- (5) <u>Andrea J. Welsh</u> and Flavio H. Fenton. *Chimeras from local coupling: FitzHugh-Nagumo with Extension*. (Manuscript in preparation).
- (4) <u>Andrea J. Welsh</u>, Edwin F. Greco, and Flavio H Fenton *Crowds as an excitable medium* for spiral wave dynamics. (Manuscript in preparation).
- (3) <u>Andrea J. Welsh</u>, Cristian Delgado, Casey Lee-Trimble, Abouzar Kaboudian, and Flavio H. Fenton, *Visualizing Waves*, *Chaos and Synchronization with a Microcontroller*. Chaos. (December 2019) DOI: <a href="https://doi.org/10.1063/1.5094351">https://doi.org/10.1063/1.5094351</a>
- (2) <u>Andrea J. Welsh.</u> Coming together: Individuals at Different Scales Working for A Common Goal. Doctoral Dissertation, Georgia Institute of Technology. (July 2019).
- (1) <u>Andrea J. Welsh</u>, Edwin F. Greco, and Flavio H. Fenton. *Dynamics of a human spiral wave*. Physics Today. (February 2017) DOI: <a href="http://dx.doi.org/10.1063/PT.3.3474">http://dx.doi.org/10.1063/PT.3.3474</a>.

#### **Commentary Articles**

- (6) <u>Andrea J. Welsh</u>, My Queer Imposter Syndrome. *Voices of Academic Blog* (To be published November 2020).
- (5) <u>Andrea J. Welsh, Supportive Groups Are Vital for Mental Health</u>. *Physics Magazine*. (August 2020)
- (4) <u>Andrea J. Welsh, Covert Care: The Cycle of Mental Health and Conference Fatigue</u>. *oSTEM Blog*. (April 2019).
- (3) Andrea J. Welsh, It's time for physicists to talk about mental health *Physics Today*. (May 2017) DOI: <a href="http://dx.doi.org/10.1063/PT.6.3.20170531a">http://dx.doi.org/10.1063/PT.6.3.20170531a</a>
- (2) <u>Andrea J. Welsh, Snowbird Meeting Turns Chaotic: SIAM Dynamical Systems 2015</u> <u>Conference Review, Dynamical Systems Today</u> (July 2015).
- (1) Christopher Marcotte and <u>Andrea Welsh</u>, <u>Dynamics Day US XXXIII Conference</u> <u>Review</u>, *Dynamical Systems Today* (January 2014).

#### **Awards**

APS GSNP Student Speaker Award Finalist	March 2019
APS FGSA Travel Award for Excellence in Graduate Research	October 2018
Best Contributed Talk, 15th ECC Conference, Madrid, Spain	June 2018
GT Lavender Award for LGBTQIA Student Leadership	Spring 2017
GT Diversity Championship Award	Fall 2015

Grants and Fellowships (14)   Weatherly Travel Grant (\$1000)   June 2018     Georgia Institute of Technology, School of Physics, Atlanta, GA     Active Materials Project Summer School (\$500)   June 2017     Georgetown University, Washington, DC     Weatherly Travel Grant (\$1000)   May 2017     Georgia Institute of Technology, School of Physics, Atlanta, GA     SIAM Travel Awards     Conference on the Life Sciences (LS16), Boston, MA (\$650)   March 2016     Conference on Applications of Dynamical Systems (DS15), Snowbird, UT (\$650)   Dec 2014     Travel Award (\$500)   October 2015     Frontiers in Physics, Pattern Formation, and Complex Materials Far From Equilibrium National Academy of Sciences, Washington DC     Travel Award (\$506)   July 2015     Dynamics of Coupled Oscillators: 40 years of the Kuramoto Model Workshop Max Planck Institute for Physics of Complex Systems, Dresden, Germany     Graduate Woman of Distinction (\$1000)   October 2014     Women's Leadership Conference, Georgia Institute of Technology, Atlanta, GA     John L and Anne Crawford Endowed Presidential Scholarship (\$15000)   Spring 2012     University of Texas- Austin, Austin TX     Undergraduate Research Opportunities Program (UROP) Grants, Boston University     Calibration and Monitoring of LHC's ATLAS Muon Spectrometer, (\$2000)   Spring 2010     Graphene Fabrication and Spectroscopy, (\$500)   Spring 2010     Graphene Fabrication and Spectroscopy, (\$500)   Spring 2009     Research Experience for Undergraduates (REU) Internships     Particle Physics Experiment and Computation, SUNY Stony Brook, (\$3300)   Summer 2009     Graphene Annealing, Boston University Photonics Center, (\$4400)   Summer 2009     Summer 2009   Summer 2009   Summer 2009     European Physical Society: Young Minds   Dealing with Mental Health as a Young Scientist	AAPT Outstanding Teaching Assistant Award GT Women's Leadership Conference- Outstanding Graduate Student	Spring 2015 Fall 2014
Active Materials Project Summer School (\$500) Georgetown University, Washington, DC  Weatherly Travel Grant (\$1000) Georgia Institute of Technology, School of Physics, Atlanta, GA  SIAM Travel Awards Conference on the Life Sciences (LS16), Boston, MA (\$650) Conference on Applications of Dynamical Systems (DS15), Snowbird, UT (\$650)  Travel Award (\$500) Frontiers in Physics, Pattern Formation, and Complex Materials Far From Equilibrium National Academy of Sciences, Washington DC  Travel Award (\$50€) Travel Award (\$50€) Dynamics of Coupled Oscillators: 40 years of the Kuramoto Model Workshop Max Planck Institute for Physics of Complex Systems, Dresden, Germany  Graduate Woman of Distinction (\$1000) Women's Leadership Conference, Georgia Institute of Technology, Atlanta, GA  John L and Anne Crawford Endowed Presidential Scholarship (\$15000) University of Texas- Austin, Austin TX  Undergraduate Research Opportunities Program (UROP) Grants, Boston University Calibration and Monitoring of LHC's ATLAS Muon Spectrometer, (\$2000) Spring 2010 Carlibration and Monitoring of JHC's ATLAS Muon Spectrometer, (\$4000) Spring 2010 Graphene Fabrication and Spectroscopy, (\$500)  Research Experience for Undergraduates (REU) Internships Particle Physics Experiment and Computation, SUNY Stony Brook, (\$3300) Graphene Annealing, Boston University Photonics Center, (\$4400) Summer 2009 Summer 2009 Summer 2009 Invited Talks (Total 16) European Physical Society: Young Minds  May 2021	Grants and Fellowships (14)	
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European Physical Society: Young Minds May 2021		
	Invited Talks (Total 16)	
		May 2021

Colloquium – Dealing with Mental Health as a Young Scientist Department of Physics, College of William and Mary	April 2021
Snowmass Town Hall Panel of experts on mental health concerns	February 2021
<b>Grad Student Seminar</b> - Dealing with Mental Health as a Young Scientist University of Notre Dame, Department of Physics	January 2021
LIGO-Virgo-KAGRA Collaboration Meeting	September 2020
APS March Meeting FECS Session - <u>Mental health challenges for early care</u> Denver, Colorado (hosted virtually)	<i>eer physicists</i> March 2020
<b>Seminar -</b> Swarms and Cells: Collective Behavior via Local Interactions in Bit Department of Physics and Astronomy, Tufts University	ological Systems March 2019
<b>Seminar -</b> Swarms and Cells: Collective Behavior in Biological Systems Department of Physics, Loyola University New Orleans	February 2019
<b>Colloquium -</b> Coming Together: Individuals at Different Scales Working for A Department of Physics and Astronomy, University of Mississippi	4 Common Goal Nov 2018
<b>Seminar -</b> Caring for your Mental Health as a Graduate Student Society of Women in Physics, University of Mississippi	November 2018
<b>Colloquium -</b> Coming Together: Individuals at Different Scales Working for A Department of Physics and Astronomy, Agnes Scott College	4 Common Goal Nov 2018
88th LHCb Week - Mental Health Care in Academia: A graduate student personal CERN, Meyrin, Switzerland	spective Jun 2018
<b>Seminar -</b> <i>Mental Health Care in Academia: A graduate student perspective</i> Universitat de València, València, Spain	June 2018
<b>Seminar -</b> <i>Managing your mental health as a graduate student</i> Syracuse University, Syracuse, NY	November 2017

APS March Meeting FGSA Session - <u>Dealing with Depression and Anxiety as a Graduate</u>

<u>Student and the benefits of Reaching Out</u>

New Orleans, LA

March 2017

**Seminar -** *Multiple Stable Manifolds of a Spatially Extended Lattice Kuramoto Model* Jul 2015 Max Planck Institute for Dynamics and Self-Organization, Göttingen, Germany

**Contributed Talks (Total 22)** 

Contributed Talks (Total 22)	
SIAM Dynamical Systems 2021, (Hosted Virtually) Chimeras as a way to model anatomical reentry in cardiac models	May 2021
APS March Meeting, (Hosted Virtually) Chimeras as a way to model anatomical reentry in cardiac models	March 2021
APS March Meeting, Denver, CO (Hosted Virtually) Pattern Selection in Shallow Suspensions of Brine Shrimp	March 2020
SIAM Dynamical Systems 2019, Snowbird, Utah Using a Micro-Controller for Dynamics Visualization	May 2019
APS March Meeting, Boston, MA Pattern Selection in Brine Shrimp Swarms	March 2019
15 <sup>th</sup> Experimental Chaos and Complexity Conference, Madrid, Spain Spatial Pattern Formation in Aggregations of Artemia Franciscana	June 2018
APS March Meeting, Los Angeles, California Chimera States with Local Coupling: the 5th Order FitzHugh-Nagumo Model	March 2018
SIAM Dynamical Systems 2017, Snowbird, Utah Pattern Formation of Swarms of Artemia Franciscana	May 2017
Physics of Living Systems Seminar, Georgia Tech, Atlanta, GA Pattern Formation of Swarms of Artemia Franciscana	April 2017
APS March Meeting, New Orleans, LA  Chimera states in 1 and 2 dimensions in a 5th order FitzHugh-Nagumo model	March 2017
American Association of Physics Teachers Winter Meeting, Atlanta, GA Creating Space for Mental Health at CUWIP	February 2017
SIAM Conference on the Life Sciences, Boston, MA <u>Crowds as an Excitable Medium for Spiral Wave Dynamics</u>	July 2016
APS March Meeting, Baltimore, MD <u>Crowds as an Excitable Medium for Spiral Wave Dynamics</u>	March 2016
9th Southeast Meeting on Soft Materials, Atlanta, GA Pattern Formation of Artemia franciscana	May 2016
<b>SIAM Dynamical Systems 2015,</b> Snowbird, Utah Studies of Stable Manifolds of a Spatial Extended Lattice Kuramoto Model	May 2015

Wet & Wild Seminar, Georgia Institute of Technology, Atlanta, GA Kuramoto, the Mean Field Model, and how it fails	Sept 2014
SIAM Conference on the Life Sciences, Charlotte, NC  Phase synchronization of nearest-neighbor coupled oscillators: A bio-inspired a a Mexican Jumping Beans Network	August 2014 pproach from
First BCAM Workshop on Nonlinear Dynamics in Biological Systems Basque Center for Applied Mathematics, Bilbao, Spain Studies of Synchronization and Wave Solutions of the KM Model Using MJB	June 2014
Advances in Cardiac Dynamics Workshop  Max Planck Institute for Dynamics and Self-Organization, Göttingen, Germany  Studies of Synchronization and Wave Solutions of the KM Model Using MJB	June 2014
Physics of Living Systems Seminar, Georgia Tech, Atlanta, GA Learning More About Synchronization Through Mexican Jumping Beans	April 2014
CERN, Meyrin, Switzerland Muon Drift Tube Chamber Alignment	June 2010
Physics/Astronomy REU Student Symposium, SUNY Stony Brook, NY Testing the High Voltage Filter Modules of the Liquid Argon Calorimeter and Si ATLAS	August 2009 mulations for
Poster Presentations (Total 14)	
	Maxiamahan 2010

Poster Presentations (10tal 14)	
oSTEM 8 <sup>th</sup> Annual Conference, Houston, TX Pattern formation of brine shrimp aggregation	November 2018
<b>Soft Matter Forefronts,</b> Georgia Institute of Technology Pattern formation of brine shrimp aggregation	April 2018
XXXVI Dynamics Days US 2017, Silver Spring, MD Dynamics of a Human Spiral Wave	January 2017
<b>oSTEM 6<sup>th</sup> Annual Conference,</b> Denver, CO <i>Dynamics of a Human Spiral Wave</i>	November 2016

Frontiers in Physics, Pattern Formation, and Complex Materials Far From Equilibrium
National Academy of Sciences, Washington DC
October 2015
Multi-stable Manifolds of a Spatially Extended Lattice Kuramoto Model

**Dynamics of Coupled Oscillators: 40 years of the Kuramoto Model Workshop** July 2015

Max Planck Institute for Physics of Complex Systems, Dresden, Germany Multi-stable Manifolds of a Spatially Extended Lattice Kuramoto Model

**Georgia Tech Research & Innovation Conference** Georgia Tech, Atlanta, GA March 2014 Coupling-Induced Synchronization of Mexican Jumping Beans

**Georgia Scientific Computing Symposium,** Kennesaw, GA *Coupling-Induced Synchronization of Mexican Jumping Beans*February 2014

**XXXIII Dynamics Days US,** Georgia Institute of Technology, Atlanta, GA

Coupling-Induced Synchronization of Mexican Jumping Beans

January 2014

**Physics of Living Systems Conference,** Princeton University, Princeton, NJ

Three Excitable Systems of Cardiac Dynamics

August 2013

**Society of Physics Students Zone 1 Conference,** UMass, Dartmouth, MA

Calibration and Alignment of Muon Drift Tube Chambers of ATLAS

UROP Symposium, Boston University, Boston MA

Calibration and Alignment of Muon Drift Tube Chambers of ATLAS

October 2010

**Society of Physics Students Zone 1 Conference,** Boston University, Boston, MA March 2009 *The Fabrication and Electronic Properties of Graphene* 

Conference for Undergraduate Women in Physics, Yale University, CT

Annealing and Raman Spectroscopy of Graphene

January 2009

**REU Photonics Symposium,** Boston University, Boston MA

Annealing and Raman Spectroscopy of Graphene

August 2008

# **Teaching Experience**

#### University of Pittsburgh, Pittsburgh, PA

Instructor, "MATH 0290: Introduction to Calculus & Analytic Geometry I" Fall 2021
Instructor, "MATH 0220 Differential Equations" Fall 2020, Spring 2021
et **Tutor** (> 300 hrs) through Wyzant, Austin, TX, Atlanta, GA 2012-Present

Private Tutor (> 300 hrs) through Wyzant, Austin, TX, Atlanta, GA
Subjects: high school physics, AP Physics B & C, college physics I & II,
pre-algebra, algebra pre-calculus, AP Calculus, differential calculus,
integral calculus, differential equations, SAT Math prep, ACT Math prep,
quantum mechanics, linear algebra, high school chemistry

### Georgia Institute of Technology, Atlanta, GA

Guest Lecturer, "Introductory Physics I"

1 Lecture on Circular motion

Guest Lecturer, "Computational Physics"

2 Lectures on Arduino Programing

Teaching Assistant, "Computational Physics"

Spring 2015

Guest Lecturer, "Computational Physics"

Spring 2015

2 Lectures on Chaos and Nonlinear dynamics

2 Lectures on Arduino Programing

Lab Instructor, "Introduction to Physics I"

2012-2013

**Loyola University New Orleans**, New Orleans, LA *Guest Lecturer*, "Introduction to Electromagnetism"

Spring 2019

ITT Tech, Kennesaw, GA

Guest Lecturer, "Calculus II"

Dec 2014-Jan 2015

University of Texas-Austin, Austin, TX

Teaching Assistant, "Integral Calculus"

Fall 2011

# **Conferences Organized**

## APS 2016 Conference for Undergraduate Women in Physics @ Georgia Tech

2016

- 200+ attendees from the South East
- First time at Georgia Institute of Technology/in Georgia

## **Conference Sessions Organized**

- (4) "Simple Systems with Complex Dynamics" mini-symposia at SIAM on Applications of Dynamical Systems, Snowbird, UT, May 2019
- (3) "Simple Systems with Complex Dynamics PT 1 & 2" mini-symposia at SIAM on Applications of Dynamical Systems, Snowbird, UT, May 2017
- (2) "Stress & Strain: Mental Health in Graduate School" Invited session at APS March Meeting, New Orleans, 2017
- (1) "Simple Systems with Complex Dynamics" mini-symposium at SIAM on Applications of Dynamical Systems, Snowbird, UT, May 2015

# **Science Camps Organized**

# **Georgia Institute of Technology**

Summer 2018

Facilitator, "Chaos Campus", Atlanta GA

- Developed curriculum for hands on camp for High School Students
- Facilitated one session with 24 students respectively

### **Georgia Institute of Technology**

Summer 2017, 2018

Facilitator, "Roller Coaster Physics", Atlanta GA

- Developed curriculum for hands on camp for Middle & High School Students
- Facilitated two sessions each year with 30 and 40 students respectively

#### **Professional Service**

### oSTEM Conference

October 2021

Virtual

Co-organized and co-facilitating panel "Quitting is often the hardest thing to do"

#### **APS REU Seminar**

August 2021

Virtual

• Facilitated workshop "Dealing with Mental Health as a Young Scientist"

# Women in Physics, University of Bath

March 2021

Virtual

• Invited talk "Disorder, chaos, and formation of patterns: My journey through a nonlinear physics PhD"

# **APS 2021 Conference for Undergraduate Women in Physics**

January 2021

Virtual

• Participated on LGBTQ+ Panel (x2), and Mental Health in Physics Panel (x2)

Georgia Tech Graduate Student Diversity Council, Physics Rep. January 2019-June 2020 Georgia Institute of Technology

## Georgia Tech Grad Pride, Vice President

Fall 2018-Summer 2019

Georgia Institute of Technology, Atlanta GA

**LGBTQIA+ Resource Center Peer-Education Safe Space Facilitator** Fall 2015-Fall 2019 Georgia Institute of Technology, Atlanta, GA

#### **APS 2019 Conference for Undergraduate Women in Physics**

January 2019

University of Alabama, Tuscaloosa, AL

• Facilitated 4 workshops: mental health x2, imposter syndrome, How to Be an Ally

# President's Undergraduate Research Awards (PURA) Reviewer

2014-2019

Georgia Institute of Technology, Atlanta GA

APS 2018 Conference for Undergraduate Women in Physics @ U of Virginia January 2018 University of Virginia, Charlottesville, VA

• Facilitated workshops on mental health

oSTEM Conference November 2017

Chicago, IL

- "Destigmatizing Invisible (Dis)Abilities and Illnesses within the LGBTQA+ Community" Panelist
- "It's Okay to Not Be Okay: Managing Your Mental Health" Panelist

#### APS Forum of Graduate Student Affairs, Member at Large

Jan 2016-Dec 2017

- Travel Award Committee Chair
- March and April Meeting Program Committee
- Social Media Representative

APS 2017 Conference for Undergraduate Women in Physics @ Virginia Tech January 2017 Virginia Tech, Blacksburg, VA

• Co-facilitated "LGBT+ Roundtable" breakout session with 18 attendees

#### Society of Women in Physics, President

2014-2017

Georgia Institute of Technology, Atlanta, GA

- Organized networking events in and outside of the School of Physics
- Organized monthly activities
- Developed mentoring program for students and faculty (which had over 30 participants)
- Meet with incoming and prospective female undergraduate and graduate students through FASET and other programs
- Organized panels for undergraduates on preparing for graduate school
- Established SWiP as an official Georgia Tech organization
- Organized the first Women's Research Symposium on GT Campus
- Diversity Committee Chair (2017)

Center for Global Diversity and Inclusion's National Coming Out Day Panelist Fall 2016 Agnes Scott, Atlanta GA

#### **APS 2016 Conference for Undergraduate Women in Physics**

2014-2016

Georgia Institute of Technology, Atlanta, GA

- Chair of the local organizing committee
- Invited speakers, secured conference space, advertised, organized workshops
- Secured funding from institution, professional organizations, and corporations
- Member of the National Organizing Committee through the American Physics Society
- Organized and facilitated workshops "LGBTQIAP+ Roundtable", and "Being a Leader: Starting a WiP Group, Leadership Skills, Mentoring"

#### **APS 2015 Conference for Undergraduate Women in Physics**

January 2015

NC Research Triangle, Durham, NC

- Moderator for "Sexuality Roundtable"
- Panelist for "How to Get Involved in Research"

**NOGLSTP'S Out to Innovate and oSTEM's 4<sup>th</sup> Annual Conference Judge** November 2014 Georgia Institute of Technology, Atlanta GA

### **Girls' Incorporated STEM Summit Volunteer**

October 2014

Georgia Institute of Technology, Atlanta GA

Developed and facilitated activity with middle school girls

# Peach State Louis Stokes Alliance for Minority Participation Judge

September 2014

Georgia Institute of Technology, Atlanta GA

#### **Experienced TA Panel participant**

August 2013, 2014, 2016

Georgia Institute of Technology, Atlanta GA

Talked with incoming first year graduate students about teaching

#### **Graduate Student Panel participant**

July 2014

Georgia Institute of Technology, Atlanta GA

• Invited to participate on a panel to talk to SURE/REU students about graduate school and fellowships in science fields

# **Boston University Physics Tour Coordinator**

Spring 2011

Boston, MA

 Interacted with incoming freshmen physics majors and parents to talk about the department

#### **Community**

#### **Mathematics in Motion**

March 2018

• Helped plan math portion of a performance piece on the subject of "*The Seven Bridges of Königsberg*," aimed at children and families

#### Meadowcreek High School Go-STEM Fair, Atlanta, GA

October 2013, 2014, 2015

Participated with hands on activities about physics

#### Atlanta Science Festival Demonstrator, Atlanta, GA

March 2015

 Organized a booth called "Oscillations-The Rhythm of Life" where we preformed demonstrations on chemical and mechanical oscillations for a general audience

#### Atlanta Science Festival Demonstrator, Atlanta, GA

March 2014

 Organized a booth called "How the Heart Works or Doesn't" for families attending the event

## 2<sup>nd</sup> Annual Latino College and STEM Fair Demonstrator, Atlanta GA

March 2014

- Conducted physics demonstrations for Latino children and parents
- Advised about college education and careers in physics

## Rabun County Middle School and Osborne High School, Atlanta, GA

October 2013

Performed physics demonstrations via video conference

#### Saturday Morning Math Group, University of Texas-Austin

2011-2012

Aided middle and high school students work on problems after lecture

#### Science, Engineering and Technology (SET) in the City, Boston, MA

April 2011

- Organized and presented physics demonstrations for young women in middle and high school
- Facilitated hands-on lab activities

#### Chenery Middle School, Belmont, MA

Dec. 2010

Organized and presented kinematics and mechanics demonstrations for two classes

#### Peabody Public Middle School, Peabody, MA

2008, 2009

- Organized and presented material on the sun (2008) and energy (2009) to two classes
- Facilitated a related hands-on activity

• Facilitated middle school students in hands-on activities

#### In the News

How to be Human in Physics, Symmetry Magazine	2021
Stressed? Depressed? You are not alone, Physics Today	2020
Pride Perspectives: Andrea Welsh on Grad Pride, Friendships, Feeling Connected	2020
Andrea Welsh: PhD in Physics	2019
oSTEM March 2019 Rising Star	2019
Minding Mental Wellness	2018
Physics Today 2017's most read articles	2017
Women in Physics Meet in Georgia Tech	2016

#### **Professional Affiliations**

Member, American Physical Society	2007-present
Member, former BU chapter president (2010), Society of Physics Students (SPS)	2007-present
Member, oSTEM	2014-present
Member, Society for Industrial and Applied Mathematics (SIAM)	2014-present
Member, American Association of Physics Teachers (AAPT)	2015-present

# **Mentored Students**

Student, degree, school, project, year.

- Gwen Kvasnicka, Post BS, Smooth particle fluid simulations, Spring 2020
- Divya Velivela, high school, Coupling of Saline Oscillator Flows, Summer 2018, 2019
- Ellie Finch, high school, Tracking brine shrimp at different temperatures, 2018-2019
- Michael Barnhill, B.S. in Physics, Georgia Institute of Technology, *Pattern formation of brine shrimp aggregation*, 2018
- Krishma Singal, B.S in Physics, Georgia Institute of Technology, *Reaction-Diffusion and photosensitive brine shrimp*, 2014-2017
- Zoha Naqwe, B.S. in Physics and Biology, Georgia Institute of Technology, Synchronization of Mexican Jumping Beans 2016-2017
- Sophia Wiesenfeld, high school, *Parameters that affect period of the Saline Oscillator*, Summer 2016
- Madeline Lazar, B.S. in Physics, Georgia Institute of Technology, *Modeling the Newton beads 2014-2015*