

# Yeliz Celik, PhD

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## **Education:**

**Ph.D.** Ohio University Department of Physics and Astronomy, Athens Ohio, March 2010.

- Thesis: Experimental Investigation of the Interactions of Hyperactive Antifreeze Proteins with Ice Crystals.

**M.S.** Bosphorus (Bogazici) University, Istanbul, Turkey, Science Education, June 2004

**B.S.** Bosphorus (Bogazici) University, Istanbul, Turkey, Physics Education, June 2004

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## **Professional Experience:**

1. Visiting Assistant Professor of Physics, Pacific Lutheran University, Tacoma (2021-present)
2. Temporary Full-Time Lecturer of Physics, University of Washington Tacoma (2020-2021)
3. Adjunct Faculty, Tacoma Community College, Tacoma, WA (Spring 2020)
  - Hired as an adjunct faculty to teach an algebra-based physics course for health majors.
4. Visiting Lecturer, Rochester Institute of Technology, Rochester, NY (2017-2019)
  - Teaching College Physics I course via workshop-style classrooms where labs, lectures, and activities are integrated in each class.
  - Nominated for The Outstanding Teaching Award for Non-Tenure-Track Faculty
5. Adjunct Faculty, Ithaca College, Ithaca, NY (Spring 2017)
  - Hired as an adjunct faculty to teach a junior level course –Thermodynamics PHYS320.
6. Adjunct Faculty, Corning Community College, Corning, NY (2016-2017)
  - Hired as an adjunct faculty to teach general chemistry laboratories.
7. Assistant Professor of Physics, Marshall University, Huntington, WV (2015-2016)
  - Hired as a three-year term faculty; taught studio-style physical science courses (Chemistry and Physics), and several algebra and calculus based physics laboratories.
  - Mentored undergraduate students and volunteered on several committees in the college.
8. Adjunct Faculty, Lakeland Community College, Kirtland, Ohio (2013-2015)
9. Post-doctoral Researcher and Research Assistant at Ohio University (2006-2012)
  - Pioneered the use of temperature controlled-microfluidic devices in studying antifreeze proteins. See Celik, PNAS 2013.
  - Validated hypothesis regarding the significance of the irreversibility of antifreeze protein binding to ice surfaces. See Celik, PNAS, 2013 & Celik, PNAS, 2010

- Demonstrated quantitatively the superheating of ice crystals in the presence of antifreeze proteins for the first time reported in literature. See Celik, PNAS 2010.
  - Collaborated with leading international scientists. Also, trained and supervised researchers and graduate students (from Canada, Turkey, Korea, China, and Israel).
  - Nominated by the department for The Donald Clippinger Graduate Fellowship
6. Teaching Assistant, Ohio University (2004-2006)
- Nominated for the Graduate Associate Outstanding Teaching Award by the students
  - Taught undergraduate physics labs.
7. Teaching Assistant, Johns Hopkins University, Center for Talented Youth (2002-2004)
- A summer program for the gifted students; worked three consecutive summers as TA for the course “Engineering and Design”
8. Internship at local high schools (2002-2004)
- Teaching internship in physics at Eyuboglu Schools, Istanbul Turkey 2003-2004
  - Volunteer science teaching for a non-governmental organization in Turkey, 2003-2004
  - Teaching internship in physics at Ulus Private Jewish School, Istanbul Turkey 2002-2003

## Publications:

1. L. Haleva, **Celik, Y.**, M. Bar-Dolev, N. Pertaya-Braun, A. Kaner, P.L. Davies, I. Braslavsky, *Microfluidic cold finger device for the investigation of ice-binding proteins*, Biophysical Journal, 2016, 111, 1143–1150.
2. Drori, R., **Y. Celik.**, P.L. Davies, and I. Braslavsky, *Ice-Binding Proteins that Accumulate on Different Ice Crystal Planes Produce Distinct Thermal Hysteresis Dynamics*, J. R. Soc. Interface, 2014, 11(98):20140526
3. **Celik Y.**, R. Drori, N. Pertaya-Braun, M. Bar-Dolev, P. L. Davies, and I. Braslavsky, *Recent experimental results show the irreversible binding of antifreeze proteins to ice surfaces*, Cryobiology and Cryotechnology 2013, 59(1), 15-21
4. **Celik, Y.**, R. Drori, N. Pertaya-Braun, A. Altan, T. Bartyon, M. Bar-Dolev, A. Groisman, P.L. Davies, and I. Braslavsky, *Microfluidic experiments reveal that antifreeze proteins bound to ice crystals suffice to prevent their growth*, PNAS, 2013, 110(4)1309-1314
5. Bar-Dolev M., **Y. Celik**, J.S. Wettlaufer, P. L. Davies, and I. Braslavsky, *New Insights into Ice Growth and Melting Modifications by Antifreeze Protein*, J. Royal Society Interface, 2012, 9:3249-59.
6. Liu, J.J., Y. Qin, M. Bar-Dolev, **Y. Celik**, J. S. Wettlaufer, and I. Braslavsky, *Modeling the Influence of Antifreeze Proteins on Three-Dimensional Ice Crystal Melt Shapes using a Geometric Approach*, Proceedings of the Royal Society A, 2012, 468(2147):3311-3322.

7. **Celik, Y.**, R. Drori, L.A. Graham, Y.F. Mok, P.L. Davies, and I. Braslavsky, *Freezing and melting hysteresis measurements in solutions of hyperactive antifreeze protein from an Antarctic Bacteria*, Proceedings of PCI 2010, Hokkaido University Press, Sapporo.
  8. **Celik, Y.**, L.A. Graham, Y.F. Mok, M. Bar, P.L. Davies, and I. Braslavsky, *Superheating of ice crystals in antifreeze protein solutions*, PNAS, 2010 107(12)5423-5428
  9. Mok, Y.F., F.H. Lin, L.A. Graham, **Y. Celik**, I. Braslavsky, and P.L. Davies, *Structural basis for the superior activity of the large isoform of snow flea antifreeze protein*, Biochemistry, 2010 49(11)2593-2603
  10. Pertaya, N., C.B. Marshall, **Y. Celik**, P.L. Davies, and I. Braslavsky, *Direct visualization of spruce budworm antifreeze protein interactions with an ice crystal: basal plane binding confers hyperactivity*. Biophysical Journal, 2008, 95(1)333-342.
  11. Bar, M., **Y. Celik**, D. Fass, and I. Braslavsky, *Interactions of  $\beta$ -helical Antifreeze Protein Mutants with Ice*. Crystal Growth & Design, 2008. 8(8)2954-2963.
  12. Pertaya, N., **Y. Celik**, C.L. DiPrinzio, J.S. Wettlaufer, P.L. Davies, and I. Braslavsky. *Growth-melt asymmetry in ice crystals under the influence of spruce budworm antifreeze protein*. J. Phys.: Condensed Matter 2007. 19 -412101 (12pp).
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### **Practical Laboratory Expertise:**

Fluorescence Microscopy

Confocal Microscopy

Raman Spectroscopy

Bright field Microscopy

Soft-lithography

Protein extraction and purification

Experienced with lasers and lenses.

Basic lab skills: preparation of chemicals and buffers, pipetting

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### **Recent Seminars and Workshops:**

- The Regional Network Meeting of Project Kaleidoscope: Practice of Inclusive Excellence, RIT, Rochester NY, 2019
- Connecting Research and Teaching Conference at Cornell University, May 2019
- AAPT New Faculty Workshop, College Park, MD, 2018
- 8th Annual Celebration of Teaching Excellence at Cornell, January 2018
- Physics Education Research Journal Club, Spring 2017, Cornell University
- Workshops on Team-based Learning, Corning Community College, Spring 2017
- Fourth Annual Teaching Innovation and Excellence Retreat, CCC, January 2017
- Workshop on Inquiry-based Learning, Corning Community College, Spring 2017
- Snow day-Blackboard Training to keep classes go on virtually, Marshall University 2015

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### Oral and Poster Presentations

- Ice Binding Proteins Workshop, Kingston, Ontario, Canada, 8/2011
- Cryobiology 2011, Corvallis, OR, 7/2011
- Ice Binding Proteins Workshop, Kingston, Ontario, Canada, 8/2009
- Invited talk: Ohio State University Biophysics Seminar
- American Physical Society March Meeting, Pittsburg, Pennsylvania, 3/2009
- Cryobiology 2008, Charlotte, NC, 7/2008
- NSS5/SPS2 Joint International Conference, Athens, OH, 7/2008
- American Chemical Society Meeting. Boston, MA. 8/2007.
- Ohio University Creativity and Research Fair. Athens, OH. 5/2007
- NanoSummit, Akron Ohio, 4/2007
- Ohio Nano Summit, Columbus, Ohio, 4/2006
- Biophysical Society Meeting. Baltimore, MD. 3/2007.

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### Outreach:

- Peninsula Hands-on Art Lead Docent, Purdy Elementary School, Gig Harbor, WA, 2019-2020
- Worked as a volunteer at WISE “Imagine RIT” exhibit, April 2019
- Worked as a volunteer at WISE “Imagine RIT” exhibit, April 2018
- “Be A Scientist”, Victor Primary Elementary School, Victor, NY, June 2018
- Worked as a volunteer at WISE “Imagine RIT” exhibit, April 2018
- Worked at Physics Accepted Student Open House, April 2018
- Judge at Big Flats Elementary School Innovation Fair 2017, Big Flats, NY.
- Organized a show “Snowflakes: No two Alike” and served as a demonstrator: Department of Physics and Astronomy, Ohio University, Open House 2011
- Served as a demonstrator: Department of Physics and Astronomy, Ohio University, Open House 2008-2009
- Helped to organize and served as demonstrator at “Snow Day”, Athens Public Library, 2008
- Helped to organize and served as demonstrator at “Snow Day”, East Elementary Public School, 2008
- Judge at Ohio District 12 Regional Science Day, 2006-2007

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### Scholarships and Awards:

- Nominated for The Outstanding Teaching Award for Non-Tenure-Track Faculty of RIT, 2019
  - Ohio University, Condensed Matter Surface Science Research Assistantship Award 2006-2009
  - Awarded \$1000 grant from *The Sigma Xi Grant-in-Aid of Research* program in 2008
  - Won 1st place at the CMSS/NQPI/BNNT Research Poster Competition in 2008
  - Won 1st place at 2007 Ohio University Creativity and Research Fair. Athens, OH. May 2007
  - Outstanding Teaching Assistant Award, American Association of Physics Teachers, 2006
  - Nominated for Outstanding Teaching Assistant of Ohio University, 2005
  - Bogazici University, Education Scholarship: 1998-2004
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