KUN-TA WU, PH.D.

Worcester Polytechnic Institute	Email:	kwu@wpi.edu
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EDUCATION

Ph.D., Center for Soft Matter Research, Department of Physics **2007-2014**
New York University, New York, NY

- Dissertation: *The Road to Colloidal Self-Replication*
- Adviser: Professor Paul M. Chaikin
- Area of Study: Soft Matter Physics

M.S., Department of Physics **2003-2005**
National Taiwan University, Taipei, Taiwan

- Thesis: *Electrical Transport in AlGaN/GaN Heterostructures*
- Adviser: Professor Chi-Te Liang
- Area of Study: Semiconductor Physics

B.S., Department of Physics **1999-2003**
National Taiwan University, Taipei, Taiwan

EMPLOYMENT

Worcester Polytechnic Institute, Worcester, MA
Assistant Professor, Department of Physics **2017-present**

Brandeis University, Waltham, MA
Visiting Research Scientist, Department of Physics **2017-present**

Brandeis University, Waltham, MA
Lecturer, Department of Physics **2017**

- Advanced Physics Laboratory (Physics 39a/169b) **2017**

Brown University, Providence, RI
Visiting Scientist, School of Engineering **2015-present**

- Function: Cleanroom (photolithography, e-beam and deep reactive ion etching)
- Adviser: Professor Thomas R. Powers

Brandeis University, Waltham, MA
Postdoctoral Associate, Department of Physics **2014-2017**

- Area of Study: Active matter (Kinesin-driven microtubules) and fluid dynamics
- Advisers: Professors Zvonimir Dogic and Seth Fraden

New York University, New York, NY
Teaching Assistant, Department of Physics **2007-2009**

- Lab Instructor – General Physics II **2009**
- Lab Instructor – How Things Work **2008**
- Lab Instructor – Einstein's Universe **2008**
- Grader – Origins of Astronomy **2007**

National Taiwan University, Taipei, Taiwan
Research Assistant, Department of Physics **2003-2005**

TEACHING EXPERIENCES

Brandeis MRSEC, Waltham, MA
Mentor, Research Experiences for Undergraduates (REU) **2016-2017**
Mentee: Angela V. Berry (Hampton University)
Project Title: The Nanometer-Scale Stepping Behaviors of Kinesin 401 and Kinesin 365

PUBLICATIONS

(Citations = 107, *h*-index = 6, source: Google Scholar on June 2, 2017)

Transition from Turbulent to Coherent Flows in Confined Three-Dimensional Active Fluids
Kun-Ta Wu, Jean Bernard Hishamunda, Daniel T.N. Chen, Stephen J. DeCamp, Ya-Wen Chang, Alberto Fernández-Nieves, Seth Fraden, and Zvonimir Dogic
Science **355**, eaal1979 (2017). doi:10.1126/science.aal1979

Polygamous Particles
Kun-Ta Wu, Lang Feng, Ruojie Sha, Remi Dreyfus, Alexander Y. Grosberg, Nadrian C. Seeman, and Paul M. Chaikin
Proc. Natl. Acad. Sci. **109**, 18731 (2012). doi:10.1073/pnas.1207356109

Kinetics of DNA-Coated Sticky Particles
Kun-Ta Wu, Lang Feng, Ruojie Sha, Remi Dreyfus, Alexander Y. Grosberg, Nadrian C. Seeman, and Paul M. Chaikin
Phys. Rev. E **88**, 022304 (2013). doi: 10.1103/PhysRevE.88.022304

Cinnamate-based DNA Photolithography
Lang Feng, Minfeng Li, Joy Romulus, Ruojie Sha, John Royer, **Kun-Ta Wu**, Qin Xu, Nadrian C. Seeman, Marcus Weck, and Paul Chaikin
Nature Materials **12**, 747 (2013). doi:10.1038/NMAT3645

The Road to Colloidal Self-Replication
Kun-Ta Wu
Doctoral Dissertation, New York University (2014)

Growth and Characterization of GaN/AlGaN High-Eelectron Mobility Transistors Grown on P-type Si Substrates
Kun-Ta Wu, P.H. Chang, S.T. Lien, N.C. Chen, Chiang-An Chang, C.F. Shih, W.C. Lien, Y.H. Wu, Shang-Chia Chen, Y.H. Chang, and C.-T. Liang
Physica E **32**, 566 (2006). doi:10.1016/j.physe.2005.12.115

Electron Transport in In-rich $In_xGa_{1-x}N$ films
Shih-Kai Lin, **Kun-Ta Wu**, Chao-Ping Huang, C.-T. Liang, Y. H. Chang, Y. F. Chen, P. H. Chang, N. C. Chen, C. A. Chang, H. C. Peng, C. F. Shih, K. S. Liu, and T. Y. Lin
Journal of Applied Physics **97**, 046101 (2005). doi:10.1063/1.1847694

Transport Measurements on MOVPE-grown InN films
Shang-Chia Chen, Shih-Kai Lin, **Kun-Ta Wu**, Chao-Ping Huang, Pen-Hsiu Chang, N. C. Chen, Chin-An Chang, Hsian-Chu Peng, Chuang-Feng Shih, Kuo-Shung Liu, Hong-Syuan Wang, Pu-Tai Yang, C.-T. Liang, Y.H. Chang, and Y. F. Chen
Microelectronics Journal **36**, 428 (2005). doi:10.1016/j.mejo.2005.02.038

Effect of Buffer Layers on Electrical, Optical and Structural Properties of AlGaN/GaN Heterostructures Grown on Si
Chin-An Chang, Shao-Tang Lien, Chen-Han Liu, Chaun-Feng Shih, Nie-Chuan Chen, Pen-Hsiu Chang, Hien-Chiu Peng, Tze-Yu Tang, Wei-Chieh Lien, Yu-Hsiang Wu, **Kun-Ta Wu**, Ji-Wei Chen, Chi-Te Liang, Yang-Fang Chen, Tong-Uan Lu, and Tai-Yuan Lin
Japanese Journal of Applied Physics **45**, 2516 (2006). doi:10.1143/JJAP.45.2516

Electrical Transport in AlGaN/GaN Heterostructures
Kun-Ta Wu
Master's Thesis, National Taiwan University, Taiwan, (2005)

TALKS/POSTERS

Scale-Invariant Transition from Turbulent to Coherent Flows in 3D Confined Active Fluids
Kun-Ta Wu, Jean Bernard Hishamunda, Daniel T.N. Chen, Stephen J. DeCamp, Ya-Wen Chang, Alberto Fernández-Nieves, Seth Fraden, and Zvonimir Dogic
Poster, *Gordon Research Conference in Soft Condensed Matter Physics* (2017)

Scale-Invariant Transition from Turbulent to Coherent Flows in 3D Confined Active Fluids
Kun-Ta Wu, Jean Bernard Hishamunda, Daniel T.N. Chen, Stephen J. DeCamp, Ya-Wen Chang, Alberto Fernández-Nieves, Seth Fraden, and Zvonimir Dogic
Talk, *The American Physical Society* **P16**, 00010 (2017)

Scale-Invariant Transition from Turbulent to Coherent Flows in Confined 3D Active Fluids
Kun-Ta Wu, Jean Bernard Hishamunda, Daniel T.N. Chen, Stephen J. DeCamp, Ya-Wen Chang, Alberto Fernández-Nieves, Seth Fraden, and Zvonimir Dogic
Soundbite Talk, *68TH New England Complex Fluid Workshop at Brandeis University* (2016)

Self-Pumping Active Gel
Kun-Ta Wu, Jean Bernard Hishamunda, Seth Fraden, and Zvonimir Dogic
Talk, *The American Physical Society* **F34**, 00001 (2016)

Self-Pumping Active Gel
Kun-Ta Wu, Jean Bernard Hishamunda, Seth Fraden, and Zvonimir Dogic
Soundbite Talk, *64TH New England Complex Fluid Workshop at Brandeis University* (2015)

Self-Pumping Active Gel
Kun-Ta Wu, Jean Bernard Hishamunda, Seth Fraden, and Zvonimir Dogic
Poster, *Gordon Research Conference in Soft Condensed Matter Physics* (2015)

When DNA Meets Depletion
Kun-Ta Wu, Lang Feng, and Paul M. Chaikin
Talk, *The American Physical Society* **N30**, 00008 (2013)

Kinetics of the Association of DNA Coated Colloids
Kun-Ta Wu, Lang Feng, Ruojie Sha, Remi Dreyfus, Nadrian C. Seeman, and Paul M. Chaikin
Talk, *The American Physical Society* **Q47**, 00009 (2012)

Kinetics and Thermodynamics of the Association of DNA Coated Colloids
Kun-Ta Wu, Lang Feng, Ruojie Sha, Remi Dreyfus, Nadrian C. Seeman, and Paul M. Chaikin
Talk, *The American Physical Society* **V9**, 00003 (2011)

NEWS REPORT

Molecular motors drive liquid through large channels
Tim Wogan
Physics World, Mar 23 (2017)

Inventing a new kind of matter
Lawrence Goodman
Brandeis NOW, Mar 23 (2017)

From chaos to order in active fluids
Alexander Morozov
Science **355**, 1262 (2017). doi:10.1126/science.aam8998

Limited Flavors for DNA-Linked Particles
Celia Henry Arnaud
Chemical & Engineering News **90**, 44 (2012)

SERVICES

Worcester Polytechnic Institute, Worcester, MA
Graduate Committee **2017-present**

The Discovery Museums, Acton, MA
Science & Engineering Communication Fellow **2017-present**

Brandeis University, Waltham, MA
Brandeis MRSEC Trainee Committee **2016-2017**

AWARDS

Most Valued Player, Badminton Team, New York University **2008**
The MacCracken Fellowship, New York University **2007**

MEMBERSHIPS

American Physical Society **2011-present**

LANGUAGES

English, Mandarin

REFERENCES

Professor Zvonimir Dogic
Professor, Department of Physics, Brandeis University
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Professor Seth Fraden
Professor, Department of Physics, Brandeis University
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Silver Professor, Department of Physics, New York University
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Professor Nadrian C. Seeman
Margaret and Herman Sokol Professor, Department of Chemistry, New York University
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Professor Alexander Grosberg
Professor, Department of Physics, New York University
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