

Colin D. Kinz-Thompson

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PROFESSIONAL POSITIONS

Rutgers University-Newark <i>Assistant Professor, Department of Chemistry</i>	2020-Present Newark, NJ
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EDUCATION

New York University School of Medicine/Columbia University <i>Post-doctoral Research on Active Transport</i> Advisors: Prof. Da-Neng Wang, Dr. Joseph A. Mindell and Prof. Ruben L. Gonzalez, Jr.	2016 - 2020 New York, NY
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Columbia University <i>Ph.D., M.Ph., and M.A. in Chemistry</i> Thesis: Dynamics of Stop-codon Recognition by Release Factor 1 Advisor: Prof. Ruben L. Gonzalez, Jr. Committee: Profs. Greene E.C., Hunt J.F., McDermott A.E. and Min W.	2010 - 2016 New York, NY
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University of Rochester <i>B.S. in Chemistry, Magna Cum Laude, Highest Distinction</i> Thesis: Photophysics of Excitons and Radicals in DNA. Advisors: Profs. Esther M. Conwell and David W. McCammant	2006 - 2010 Rochester, NY
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FELLOWSHIPS

Department of Energy Office of Science Graduate Fellowship <i>DE-AC05-06OR23100</i>	2012 - 2015
NIH Training Program in Molecular Biophysics <i>T32-GM008281 to Columbia University</i>	2011

HONORS AND AWARDS

George Pegram Award for Meritorious Achievement in Chemical Research <i>Columbia University, Department of Chemistry</i>	May 2015 New York, NY
John McCreary Memorial Prize <i>University of Rochester, Department of Chemistry</i>	May 2010 Rochester, NY
Phi Beta Kappa <i>University of Rochester</i>	May 2010 Rochester, NY
President's Award in Science and Engineering <i>University of Rochester, Undergraduate Research Expo</i>	April 2010 Rochester, NY
Merck Scholar Award for Juniors <i>University of Rochester, Department of Chemistry</i>	May 2009 Rochester, NY
Carl A. Whiteman Jr. Teaching Award <i>University of Rochester, Department of Chemistry</i>	May 2008 Rochester, NY

PUBLICATIONS

In Press

Kinz-Thompson, C.D., Ray, K.K., Gonzalez, Jr., R.L., *Bayesian inference: the comprehensive approach to analyzing single-molecule experiments*. Annual Review of Biophysics, 2020. DOI: 10.1146/annurev-biophys-082120-103921.

Published

Subramanyam, S., **Kinz-Thompson, C.D.**, Gonzalez, R.L., Jr., Spies, M. *Observation and Analysis of RAD51 Nucleation Dynamics at Single-monomer Resolution*. Methods in Enzymology 2018, 600, 201-232.

Kinz-Thompson, C.D., Gonzalez, R.L., Jr. *Increasing the Time Resolution of Single-molecule Experiments with Bayesian Inference*. Biophysical Journal 2018, 114, 289-300. **[Co-corresponding]**

Kinz-Thompson, C.D., Bailey, N.A., Gonzalez, R.L., Jr. *Precisely and Accurately Inferring Single-molecule Rate Constants*. Methods in Enzymology 2016, 581, 187-225.

Kinz-Thompson, C.D.*, Sharma, A.K.*, Frank, J., Gonzalez, R.L., Jr. Chowdhury, D. *Quantitative Connection between Ensemble Thermodynamics and Single-Molecule Kinetics: A Case Study Using Cryogenic Electron Microscopy and Single-Molecule Fluorescence Resonance Energy Transfer Investigations of the Ribosome*. J. Phys. Chem. B 2015, 119(34), 10888-10901.

Kinz-Thompson, C.D., Gonzalez, R.L., Jr. *smFRET Studies of the "Encounter" Complexes and Subsequent Intermediate States that Regulate the Selectivity of Ligand Binding*. FEBS Lett. 2014, 588(19), 3526-3538.

Kinz-Thompson, C.D., Palma, M., Pulukkunat, D.K., Chenet, D., Hone, J., Wind, S.J., Gonzalez, R.L., Jr. *Robustly Passivated, Gold Nanoaperture Arrays for Single-Molecule Fluorescence Microscopy*. ACS Nano 2013, 7(9), 8159-8166.

Kravec, S.M., **Kinz-Thompson, C.D.**, Conwell, E.M. *Localization of a Hole on an Adenine- Thymine Radical Cation Embedded in B-Form DNA in Water*. J. Phys. Chem. B 2011, 115(19), 6166-6171.

Kinz-Thompson, C., Conwell, E. *Proton Transfer in Adenine-Thymine Radical Cation Embedded in B-Form DNA*. J. Phys. Chem. Lett. 2010, 1(9), 1403-1407.

Kucherov, V.M., **Kinz-Thompson, C.D.**, Conwell, E.M. *Polarons in DNA Oligomers*. J. Phys. Chem. C 2010, 114(3), 1663-1666.

PRESENTATIONS

Talks

Kinz-Thompson, C.D. *From fluctuations to function: the contribution of protomer conformational dynamics to the VclINDY transport cycle* New York Structural Biology Discussion Group Winter Meeting, New York, NY. January 9, 2020.

Kinz-Thompson, C.D. *The Contribution of Protomer Dynamics to the Transport Cycle of Secondary Active Transporters* the Molecular Biophysics Program at NYU School of Medicine, New York, NY. April 24, 2019.

Kinz-Thompson, C.D. *From Fluctuations to Function: The Role of Dynamics in the Mechanism and (Dys)regulation of Biological Processes*. Merck Drug Discovery Science visit at Columbia University, New York, NY. April 16, 2018.

Kinz-Thompson, C.D. *Machine-learning Approaches to Single-molecule Fluorescence Imaging and Data Analysis*. The RNA Institute, University at Albany, State University of New York, Albany, NY. August 4, 2017.

Kinz-Thompson, C.D. *Defeating the Concentration Barrier*. Physical Chemistry Student Seminar, Columbia University, New York, NY. February 5, 2013.

Kinz-Thompson, C.D. *Proton Transfer in the Adenine-Thymine Radical Cation*. The 2010 University of Rochester Undergraduate Research Exposition, Rochester, NY. April 23, 2010.

Posters

Kinz-Thompson, C.D., Gonzalez, R.L., Jr. *Dynamics of Stop-codon Recognition by Release Factor 1*. The Biophysical Society 60th Annual Meeting, Los Angeles, CA. 1170-Pos. Feb 29, 2016.

Kinz-Thompson, C.D., Gonzalez, R.L., Jr. *Bayesian Inference for the Analysis of Sub-Temporal Resolution Data*. The 2014 DOE SCGF Retreat at Fermi National Accelerator Laboratory, Batavia, IL. June 22, 2014.

Kinz-Thompson, C.D., Palma, M., Pulukkunat, D.K., Chenet, D.A., Hone, J., Wind, S.J., Gonzalez, R.L., Jr. *Robustly Passivated, Gold Nanoaperture Arrays for Single-Molecule Fluorescence Microscopy*. The 2013 DOE SCGF Retreat at Lawrence Berkeley National Laboratory, Berkeley, CA. July 30, 2013.

Kinz-Thompson, C.D., Palma, M., Pulukkunat, D.K., Chenet, D.A., Hone, J., Wind, S.J., Gonzalez, R.L., Jr. *Second-Generation Zero-Mode Waveguides*. Gordon Research Conference: Single-Molecule Approaches to Biology. February 21, 2012.

Kinz-Thompson, C.D., Conwell, E.M. *Charge Transport in DNA: The Role of Water*. The 239th ACS National Meeting: Div. Phys. Chem.: Multiscale Nanomaterials, Polymer, and Biomolecular Dynamics, San Francisco, CA, Publication No. 480. March 24, 2010.

PATENTS

Kinz-Thompson, C.D., "Time-resolved translational profiles from single-cells across spatially heterogeneous tissue environments for cancer diagnosis, prognosis, and drug discovery", February 28, 2019, US Patent No. 62/812,122.

Kinz-Thompson, C.D., Gonzalez, R.L., Hone, J.C., Palma, M., Godarenko, A.A., Chenet, D.A., Wind, S.J. "Zero-mode Waveguide for Single Biomolecule Fluorescence Imaging", 2013, US Patent No. 13/655,947.

TEACHING AND MENTORING EXPERIENCE

Physical Chemistry Lab, 160:427 Fall 2020
Department of Chemistry, Rutgers University-Newark Newark, NJ

- Teaching the upper-level undergraduate physical chemistry lab class.

Single-molecule Microscope Super-User 2012 - present
Gonzalez Lab, Department of Chemistry, Columbia University New York, NY

- Trained, and certified users to use a home-built total internal reflection fluorescence microscope.

Undergraduate and Graduate Student Research Mentor 2010 - present
Gonzalez Lab, Department of Chemistry, Columbia University New York, NY

- Trained, and mentored four undergraduate students, one rotation student, and three graduate students.

Graduate Biophysical Chemistry, Lecturer 2016
Department of Chemistry, Columbia University New York, NY

- Developed and presented three graduate-level lectures on "Introduction to Molecular Dynamics".
- Part of the *ChemTeach* program. Lectures were videotaped and formally reviewed for feedback.

General Chemistry 2, Teaching Assistant 2011-2014
Department of Chemistry, Columbia University New York, NY

- Held weekly recitations, wrote and graded quizzes, wrote exams, held review sessions, gave mini-lectures.

Molecular Spectroscopy Lab, Teaching Assistant 2010
Department of Chemistry, University of Rochester Rochester, NY

- Held weekly lab session, prepared and troubleshoot instrumentation, and graded lab reports.

General Chemistry Lab, Teaching Assistant
Department of Chemistry, University of Rochester
- Supervised lab sessions, and graded lab reports.

2008-2009
Rochester, NY

General Chemistry 2, Teaching Assistant
Department of Chemistry, University of Rochester
- Transformed chalkboard-based lectures into digital presentations.

2008
Rochester, NY

Organic Chemistry 1 and 2, Workshop Leader and Super-leader
Department of Chemistry, University of Rochester

2008-2010
Rochester, NY

- Held weekly peer-lead workshops, lead pedagogical training of other workshop leaders, graded exams.