

JIIYOUN (JJ) JEONG

Wyss Institute, Center for Life Science Bldg., 3 Blackfan Circle, Boston, MA 02115

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RESEARCH EXPERIENCE

Wyss Institute at Harvard University, Boston, MA *September 2019 - Present*
Postdoctoral Research Fellow, supervised by Peng Yin

Georgia Institute of Technology, Atlanta, GA *May 2019 - August 2019*
Postdoctoral Research Fellow, supervised by Harold D. Kim

Georgia Institute of Technology, Atlanta, GA *September 2012 - May 2019*
Graduate Research Assistant, supervised by Harold D. Kim

- Studied the kinetic process of short DNA (<150 bp) cyclization by single-molecule Fluorescence Resonance Energy Transfer (FRET) DNA looping and unlooping assays
- Designed and performed single-molecule Protein Induced fluorescence Enhancement (PIFE) assays to study how protein target search kinetics is affected by DNA looping

EDUCATION

Georgia Institute of Technology *September 2012 - May 2019*
Ph. D. in Physics
Thesis: Single-molecule Biophysics of DNA Cyclization
Advisor: Dr. Harold D. Kim

University of Michigan – Ann Arbor *September 2009 - December 2011*
B.S. in Physics

PEER-REVIEWED PUBLICATIONS

Jeong, J. and Kim, H. D. Determinants of cyclization-decyclization kinetics of short DNA with sticky ends. (*in revision*), preprint at bioRxiv; doi: <https://doi.org/10.1101/503490>

Jeong, J. and Kim, H. D. (2019) Base-pair mismatch can destabilize small DNA loops through cooperative kinking. *Physical Review Letters*, 122(21), 218101.

Jeong, J., Le, T. T., and Kim, H. D. (2016). Single-molecule fluorescence studies on DNA looping. *Methods*, 105, 34-43.

TEACHING AND MENTORING EXPERIENCE

Georgia Institute of Technology, Atlanta, GA
Graduate Teaching Assistant *2012 - 2014*

Undergraduate Honor's Thesis Mentor *2017 - 2018*

HONORS AND AWARDS

Georgia Institute of Technology, Atlanta, GA
The Weatherly Fund Travel Award (\$500) *2017*

Best Poster Travel Award (\$2,000) *2017*

University of Michigan, Ann Arbor, MI
University Honors *2010, 2011*

ORAL PRESENTATIONS

Jeong, J., Kim, H. D. (2016). Observation of flexibility reversal in DNA bending. Physics of Living Systems Lunch & Learn, Georgia Institute of Technology

Jeong, J., Kim, H. D. (2016). The effect of local melting of DNA on DNA loop formation. American Physical Society (APS) March Meeting 2016

Jeong, J., Kim, H. D. (2016). The effect of local melting of DNA on DNA loop formation. Invited Talk in the AKPA-KPS Joint Session at APS March Meeting 2016

Jeong, J., Kim, H. D. (2015). The effect of local melting of DNA on DNA loop formation. Physics of Living Systems Lunch & Learn, Georgia Institute of Technology

Jeong, J., Kim, H. D. (2014). How DNA melting influences flexibility. Physics of Living Systems Lunch & Learn, Georgia Institute of Technology

POSTER PRESENTATIONS

Jeong, J., Kim, H. D. (2019). Base-pair mismatch can destabilize small DNA loops through cooperative kinking. 2019 Annual Meeting of the International Physics of Living Systems (iPoLS) Network

Jeong, J., Kim, H. D. (2017). Small DNA loops can be destabilized by base pair mismatches 2017 Annual Meeting of the International Physics of Living Systems (iPoLS) Network

Jeong, J., Kim, H. D. (2017). Observation of flexibility reversal in DNA bending. The Career, Research, and Innovation Development Conference (CRIDC), Georgia Institute of Technology (Travel Award for the Best Poster Presentation)

Jeong, J., Kim, H. D. (2017). Observation of flexibility reversal in DNA bending. Biophysical Society 61st Annual Meeting 2017

Jeong, J., Kim, H. D. (2016). The effect of local melting of DNA on DNA loop formation. Biophysical Society 60st Annual Meeting 2016

Jeong, J., Kim, H. D. (2015). How DNA melting influences flexibility 2015 Annual Meeting of the International Physics of Living Systems (iPoLS) Network

TECHNICAL SKILLS

1. Experimental skills

- Microscopy: objective-type total internal reflection fluorescence microscopy
- Molecular biology: Polymerase Chain Reaction (PCR), gel electrophoresis, oligonucleotide design and labeling, site-directed mutagenesis, *E. coli* transformation and cloning

2. Software

- Matlab: used for simulations and developed Matlab GUI for data collection and image analysis
- Visual C++: used for data acquisition and device control for EMCCD (Andor ixon), serial port connection, and simulations
- VPython: used as a visual aid for in-classroom numerical analysis