

Curriculum Vitae Sang-Hee Shim

Ulsan National Institute of
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(UNIST)

Department of
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ACADEMIC POSITIONS

- 2014–
present **Assistant Professor**
Department of Biomedical Engineering, School of Life
Sciences
Department of Chemistry, School of Natural Sciences
Ulsan National Institute of Science and Technology (UNIST)
- 2008
–2013 **Postdoctoral Fellow**
Department of Chemistry and Chemical Biology
Harvard University
Advisor: Xiaowei Zhuang

EDUCATION

- 2003 **PhD in Chemistry**
–2008 University of Wisconsin-Madison
Thesis: *2D IR spectroscopy: automation with pulse shaping and
application to amyloid folding*
Advisor: Martin T. Zanni
- 2002 **MS in Chemistry**
–1999 Seoul National University
Thesis: *Modelling of stacking procedure in a highly saline sample*
Advisor: Doo Soo Chung
- 1995 **BS with Honors in Chemistry**
–1999 Seoul National University

HONORS & AWARDS

- 2010 **Nobel Laureate Signature Award for Graduate
Education in Chemistry (as student)**
American Chemical Society
- 2008 **Mary Fieser Postdoctoral Fellowship**
–2009 Harvard University
- 2003 **Kwanjeong Scholarship for Graduate Studies**
–2008 Kwanjeong Educational Foundation
- 1998 **Outstanding Student Award**
Alumni Association of Chemistry, Seoul National University
- 1997 **Merit Scholarship**
–1998 Seoul National University
- 1995 **Admission Scholarship**
Seoul National University

PROFESSIONAL POSITIONS

- 2002 **Samsung Advanced Institute of Technology**
–2003 Research assistant in medical informatics
- 2001 **Korea Research Institute of Bioscience and
–2002 Biotechnology**
Research intern in bioinformatics

PUBLICATIONS

1190 citations, 74.38 citations/article, h-index=14 (Web of Science)

18. Chung JJ,* Shim SH*, Everley RA, Gygi SP, Zhuang X and Clapham D, “Structurally distinct Ca^{2+} signaling domains of sperm flagella orchestrate tyrosine phosphorylation and motility”, **Cell**, 157: 808-822 (2014). *Equal authors. (Selected for PaperFlicks; *Cell* video abstract online)
17. Xu K,* Shim SH* and Zhuang X, “Super-resolution imaging through the localization of single molecules: an overview”, in “Far-field Optical Nanoscopy”, Edited by Tinnefeld P, Eggeling C and Hell S, Springer Series on Fluorescence (Springer, Berlin, Heidelberg, 2013). *Equal authors.
16. Shim SH*, Xia C,* Zhong G, Babcock H, Vaughan J, Huang B, Wang X, Xu C, Bi GQ and Zhuang X, “Super-resolution fluorescence imaging of organelles in live cells with photoswitchable membrane probes”, **Proceedings of the National Academy of Sciences of the United States of America**, 109: 13978-83 (2012). *Equal authors.
15. Jones SA,* Shim SH,*† He J and Zhuang X,† “Fast, three-dimensional super-resolution imaging of live cells”, **Nature Methods**, 8: 499-505 (2011). *Equal authors. †Corresponding authors.
14. Shim SH, Gupta R, Ling YL, Strasfeld DB, Raleigh DP and Zanni MT, “2D IR spectroscopy defines the pathway of amyloid formation with residue specific resolution”, **Proceedings of the National Academy of Sciences of the United States of America**, 106: 6614-6619 (2009).
13. Shim SH and Zanni MT, “How to turn your pump-probe experiment into a multidimensional spectrometer: 2D IR and Vis spectroscopies via pulse shaping”. Perspective article, **Physical Chemistry Chemical Physics**, 11: 748 (2009). **Featured on the front cover
12. Ling YL, Strasfeld DB, Shim SH, Raleigh DP and Zanni MT, “Two-dimensional IR spectroscopy provides evidence of an on-pathway intermediate in the membrane-catalyzed assembly of diabetic amyloid”, **Journal of Physical Chemistry B**, 113: 2498 (2009).
11. Strasfeld DB, Shim SH and Zanni MT, “New advances in mid-IR pulse shaping and its applications to 2D IR spectroscopy and ground state coherent control.” Invited article for **Advances in Chemical Physics**, 141: 128 (2009).
10. Xiong W, Strasfeld DB, Shim SH, and Zanni MT, “Automated 2D IR spectrometer mitigates the influence of high optical densities”, **Vibrational Spectroscopy**, 50: 136 (2009).
9. Strasfeld DB, Ling YL, Shim SH, and Zanni MT, “Tracking fibril formation in human Islet amyloid polypeptide with automated 2D-IR spectroscopy”, **Journal of the American Chemical Society**, 130: 6698 (2008).
8. Grumstrup EM,* Shim SH*, Montgomery MA,* Damrauer NH, and Zanni MT, “Facile collection of two-dimensional electronic spectra using femtosecond pulse-shaping technology,” **Optics Express**, 15: 16681 (2007). *Equal authors.
7. Shim SH, Strasfeld DB, Ling YL and Zanni MT, “Automated 2D IR spectroscopy using a mid-IR pulse shaper and application of this technology to the human islet amyloid polypeptide,” **Proceedings of the National Academy of Sciences of the United States of America**, 104: 14197 (2007).
6. Strasfeld DB, Shim SH and Zanni MT, “Controlling vibrational excitation with shaped mid-IR pulses,” **Physical Review Letters**, 99: 038102 (2007).
5. Shim SH, Strasfeld DB, Zanni MT, “Generation and characterization of phase and amplitude shaped femtosecond mid-IR pulses,” **Optics Express**, 14: 13120 (2006).

4. Shim SH,* Strasfeld DB,* Fulmer EC, Zanni MT, “Femtosecond pulse shaping directly in the mid-IR using acousto-optic modulation,” **Optics Letters**, 31: 838-840 (2006). *Equal authors.
3. Shim SH, Riaz A, Choi K and Chung DS, “Dual stacking of unbuffered saline samples, transient isotachopheresis plus induced pH junction focusing”, **Electrophoresis**, 24: 1603 (2003).
2. Shim SH and Chung DS, “PepAssem, a peptide assembly algorithm for a complex protein mixture”, **Genome Informatics**, 12: 366-367 (2001).
1. Chung H, Zhao BS, Lee SH, Cho K, Hwang SH, Shim SH, Lim SM, Kang WK and Chung DS, “Molecular lens applied to benzene and carbon disulfide molecular beams”, **Journal of Chemical Physics**, 114: 8293 (2001).

INVITED TALKS

Seattle Super-resolution Microscopy Workshop, Seattle, WA, USA, September 2015

Cold Spring Harbor Asia Conferences on “Single Cells”, Suzhou, China, December 2014

East Asian Workshop on Chemical Dynamics, Busan, Korea, May 2014

FASEB Summer Research Conference on “Membrane Organization by Molecular Scaffolds”, Saxtons River, VT, USA, July 2011

American Chemical Society National Meeting, San Francisco, CA, USA, March 2010

Conference on Lasers and Electro-Optics, San Jose, CA, USA, May 2008

Telluride Science Research Center Workshop on “Vibrational Dynamics”, Telluride, CO, USA, July 2007

PROFESIONAL ACTIVITIES

Journal Reviewer: Nature Methods, Journal of the American Chemical Society, Optics Letters, Journal of Physical chemistry B