

## CURRICULUM VITAE

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### **EDUCATION:**

- Apr. 1999 – Nov. 2002: Doctor of Philosophy (PhD)  
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Graduate School of Arts and Sciences,  
The University of Tokyo, Japan.  
Adviser: Associate Professor Kiyohiko Someda
- Apr. 1997 – Mar. 1999: Master of Philosophy (MPhil)  
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The University of Tokyo, Japan.  
Adviser: Associate Professor Kiyohiko Someda
- Apr. 1993 – Mar. 1997: Bachelor of Philosophy (BPhil)  
in Department of Basic Science,  
College of Arts and Sciences,  
The University of Tokyo, Japan.

### **EXPERIENCE:**

- Apr. 2023 – present: Research Assistant Professor  
at Division of Pharmaceutical Sciences,  
School of Pharmaceutical Sciences,  
University of Shizuoka, Japan.
- Apr. 2018 – Mar. 2023: Program-Specific Associate Professor (JST-CREST)  
at Division of Biological Sciences,  
Graduate School of Science,  
Kyoto University, Japan.

- Apr. 2013 – Mar. 2018: Assistant Professor  
at Department of Medical Life Science,  
Graduate School of Medical Life Science,  
Yokohama City University, Japan.
- Apr. 2009 – Mar. 2013: Assistant Professor  
at Department of Supramolecular Biology,  
Graduate School of Nanobioscience,  
Yokohama City University, Japan.
- Apr. 2007 – Mar. 2009: Assistant Professor  
at Department of Supramolecular Biology,  
International Graduate School of Arts and Sciences,  
Yokohama City University, Japan.
- Apr. 2005 – Mar. 2007: Research Associate  
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Yokohama City University, Japan.
- Apr. 2004 – Mar. 2005: Research Associate  
at Science of Biological Supramolecular Systems,  
Graduate School of Integrated Science,  
Yokohama City University, Japan.
- Dec. 2002 – Mar. 2004: Post-doctoral Fellow  
of ACT-JST (Research and Development for Applying  
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at Department of Chemistry, Faculty of Science,  
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**PUBLICATIONS:**

1. Tsuyoshi Ishizone\*, Yasuhiro Matsunaga, Sotaro Fuchigami, and Kazuyuki Nakamura, "Representation of protein dynamics disentangled by time-structure-based prior." *J. Chem. Theory Comput.* 20(1) 436–450, 2024.
2. Kazumi Saikusa\*, Daiki Asakawa, Sotaro Fuchigami, and Satoko Akashi, "Evaluation for ion heating of H2A-H2B dimer in ion mobility spectrometry–mass spectrometry." *Mass Spectrom. (Tokyo)* 12(1) A0131-1-8, 2023.
3. Suguru Kato, Shoji Takada,\* and Sotaro Fuchigami\*, "Particle smoother to assimilate asynchronous movie data of high-speed AFM with MD simulations." *J. Chem. Theory Comput.* 19(14) 4678–4688, 2023.

4. Yasuhiro Matsunaga\*, Sotaro Fuchigami, Tomonori Ogane, Shoji Takada, “End-to-end differentiable blind tip reconstruction for noisy atomic force microscopy images.” *Sci. Rep.* 13(1) 129-1-16, 2023.
5. Sotaro Fuchigami\*, Shoji Takada\*, “Inferring Conformational State of Myosin Motor in an Atomic Force Microscopy Image via Flexible Fitting Molecular Simulations.” *Front. Mol. Biosci.* 9, 882989-1-8, 2022.
6. Sotaro Fuchigami\*, Toru Niina, Shoji Takada\*, “Case Report: Bayesian Statistical Inference of Experimental Parameters via Biomolecular Simulations: Atomic Force Microscopy.” *Front. Mol. Biosci.* 8, 636940-1-6, 2021.
7. Sotaro Fuchigami\*, Toru Niina, Shoji Takada\*, “Particle filter method to integrate high-speed atomic force microscopy measurements with biomolecular simulations.” *J. Chem. Theory Comput.* 16(10) 6609–6619, 2020.
8. Toru Niina, Sotaro Fuchigami, Shoji Takada\*, “Flexible fitting of biomolecular structures to atomic force microscopy images via biased molecular simulations.” *J. Chem. Theory Comput.* 16(2) 1349-1358, 2020.
9. Ikuko Hayashi\*, Takashi Oda, Mamoru Sato, Sotaro Fuchigami, “Cooperative DNA binding of the plasmid partitioning protein TubR from the *Bacillus cereus* pXO1 plasmid.” *J. Mol. Biol.* 430(24) 5015-5028, 2018.
10. Kazumi Saikusa, Akihisa Osakabe, Daiki Kato, Sotaro Fuchigami, Aritaka Nagadoi, Yoshifumi Nishimura, Hitoshi Kurumizaka, Satoko Akashi\*, “Structural diversity of nucleosomes characterized by native mass spectrometry.” *Anal. Chem.* 90(13) 8217-8226, 2018.
11. Takahisa Maki, Ashley D. Grimaldi, Sotaro Fuchigami, Irina Kaverina, Ikuko Hayashi\*, “CLASP2 has two distinct TOG domains that contribute differently to microtubule dynamics.” *J. Mol. Biol.* 427(14) 2379-2395, 2015.
12. Kazumi Saikusa, Aritaka Nagadoi, Kana Hara, Sotaro Fuchigami, Hitoshi Kurumizaka, Yoshifumi Nishimura, and Satoko Akashi\*, “Mass spectrometric approach for characterizing the disordered tail regions of the histone H2A/H2B dimer.” *Anal. Chem.* 87(4) 2220-2227, 2015.
13. Yusuke Naritomi, Sotaro Fuchigami\*, “Slow dynamics of a protein backbone in molecular dynamics simulation revealed by time-structure based independent component analysis.” *J. Chem. Phys.* 139(21) 215102-1-10, 2013.
14. Kazumi Saikusa, Sotaro Fuchigami, Kyohei Takahashi, Yuuki Asano, Aritaka

- Nagadoi, Hiroaki Tachiwana, Hitoshi Kurumizaka, Mitsunori Ikeguchi, Yoshifumi Nishimura\*, and Satoko Akashi\*, "Gas-phase structure of the histone multimers characterized by ion mobility mass spectrometry and molecular dynamics simulation." *Anal. Chem.* 85(8) 4165-4171, 2013.
15. Sotaro Fuchigami, Hiroshi Fujisaki, Yasuhiro Matsunaga and Akinori Kidera\*, "Protein functional motions: basic concepts and computational methodologies." *Adv. Chem. Phys.* 145 35-82, 2011.
  16. Takayuki Amemiya, Ryotaro Koike, Sotaro Fuchigami, Mitsunori Ikeguchi and Akinori Kidera\*, "Classification and annotation of the relationship between protein structural change and ligand binding." *J. Mol. Biol.* 408(3) 568-584, 2011.
  17. Yusuke Naritomi, Sotaro Fuchigami\*, "Slow dynamics in protein fluctuations revealed by time-structure based independent component analysis: The case of domain motions." *J. Chem. Phys.* 134(6) 065101-1-8, 2011.
  18. Koro Nishikata, Sotaro Fuchigami, Mitsunori Ikeguchi and Akinori Kidera\*, "Molecular modeling of the HAMP domain of sensory rhodopsin II transducer from *Natronomonas pharaonis*." *BIOPHYSICS* 6 27-36, 2010.
  19. Satoshi Omori, Sotaro Fuchigami, Mitsunori Ikeguchi, and Akinori Kidera\*, "Latent dynamics of a protein molecule observed in dihedral angle space." *J. Chem. Phys.* 132(11) 115103-1-7, 2010.
  20. Sotaro Fuchigami\*, Satoshi Omori, Mitsunori Ikeguchi, and Akinori Kidera\*, "Normal mode analysis of protein dynamics in a non-Eckart frame." *J. Chem. Phys.* 132(10) 104109-1-7, 2010.
  21. Satoshi Omori, Sotaro Fuchigami, Mitsunori Ikeguchi, and Akinori Kidera\*, "Linear response theory in dihedral angle space for protein structural change upon ligand binding." *J. Comput. Chem.* 30(16) 2602-2608, 2009.
  22. Yasuhiro Matsunaga, Sotaro Fuchigami, and Akinori Kidera\*, "Multivariate frequency domain analysis of protein dynamics." *J. Chem. Phys.* 130(12) 124104-1-8, 2009.
  23. Christine Addy, Masato Ohara, Fumihiko Kawai, Akinori Kidera, Mitsunori Ikeguchi, Sotaro Fuchigami, Masanori Osawa, Ichio Shimada, Sam-Yong Park, Jeremy R. H. Tame and Jonathan G. Heddle\*, "Nickel binding to Nika: an additional binding site reconciles spectroscopy, calorimetry and crystallography." *Acta Cryst. D* 63(2) 221-229, 2007.
  24. Sotaro Fuchigami\*, Kiyohiko Someda\*, "Nonadiabatic dynamics of the classical hydrogen molecular ion  $H_2^+$ ." *J. Phys. Soc. Jpn.* 72(8) 1891-1898,

2003.

25. Kiyohiko Someda\*, Sotaro Fuchigami, "Secular dynamics in intramolecular vibrational energy redistribution and secular increase of relative entropy." J. Phys. Chem. A 102(47) 9454-9463, 1998.