

Adelene Y. L. Sim

PERSONAL PARTICULARS

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Gender Female

Date of Birth 5th July 1983

Nationality Singaporean

EDUCATIONAL QUALIFICATIONS

2006 – present PhD candidate in Applied Physics, Stanford University

2006 – 2009 M.S. Applied Physics, Stanford University

2002-2005 B.A. (Hons) Natural Sciences (Physics), Selwyn College,
Cambridge University

2000-2001 Victoria Junior College, Singapore

1996-1999 Dunman High School, Singapore

ACADEMIC AWARDS

2002 – present Agency for Science, Technology and Research (A*STAR)
National Science Scholarship (NSS)
Full funding for undergraduate and graduate (PhD) studies

2003, 2004 Selwyn College Scholarship

2003, 04, 05 Selwyn College Book Prize

RESEARCH EXPERIENCE

Aug 2008 – present Physical and Computational Studies of RNA Structures
Levitt group, Stanford University

- *Predicting and understanding RNA tertiary structure using knowledge-based potentials, low-resolution experimental data, sampling approaches and geometric constraints*

Jan 2007 – Jul 2008 Understanding nucleic acid structure using computer simulations and experimental approaches
Doniach group and Herschlag group, Stanford University

- *Theoretical predictions and calculations of the effects of electrostatics on nucleic acid stability*
- *Small angle x-ray scattering approaches in extracting structural information of biological macromolecules in different states*

2005 Morphology of Hydrothermally Synthesized Zinc Oxide Growth
Institute of Materials Research and Engineering (IMRE),

Singapore

Supervisors: Prof David Srolovitz and Dr Gregory Goh

- *Theoretical and computational analysis of crystal morphology based on the kinetics of hydrothermally prepared ZnO powders and films*
- *Use of C++ programming and Level Set Method*

- 2004 Study of a Passive Mode-locked Fiber Laser and its Possible Application in Optical Sampling
Institute of Infocomm Research (I²R), Singapore
Supervisor: Prof Lu Chao
- *Experimental study of mode-locked fiber laser for optical sampling in telecommunications*

TEACHING EXPERIENCE

- 2008 (Sept – Nov) Stanford University, Structural Biology Department
Teaching Assistant
- *graded assignments and gave office hours for Computational Structural Biology*
- 2008 (Mar – Jun) Stanford University, Applied Physics Department
Teaching Assistant
- *graded assignments and gave office hours for Introductory Biophysics*
- 2006 (Jan – May) National University of Singapore, Physics Department
Teaching Assistant
- *Conducted weekly tutorials on Electricity and Magnetism to first year Physics undergraduate students*
- 2002 (Jan – May) Victoria Junior College, Singapore
Relief teacher
- *Taught Physics (tutorials and laboratories) to junior college students*

PROFESSIONAL MEMBERSHIPS

- 2006 – present Biophysical Society, USA
2006 – present American Physical Society, USA
2002 – 2008 Institute of Physics, UK

ADDITIONAL SKILLS

Proficient at Mandarin Chinese (written and spoken)

Experienced in: Nucleic Acid Builder (NAB), Matlab, Python, C++-programming, Microsoft Office

Familiar with: Linux, Perl

PUBLICATIONS

1. Lipfert J., **Sim A.Y.L.**, Herschlag D., Doniach S., *Dissecting electrostatic screening, specific ion binding, and ligand binding in an energetic model for glycine riboswitch folding*, RNA (in press)
2. Columbus L., Lipfert J., Jambunathan K., Fox D.A., **Sim A.Y.L.**, Doniach S., Lesley S.A., *Mixing and matching detergents for membrane protein NMR structure determination*, J. Am. Chem. Soc, 131, 7320 (2009)
3. Sivaramakrishnan S., Spink B.J., **Sim A.Y.L.**, Doniach S., Spudich J.A., *Dynamic charge interactions create surprising rigidity in the ER/K alpha-helical protein motif*, PNAS, 105, 13356 (2008)
4. **Sim A.Y.L.**, Goh G.K.L., Tripathy S., Andeen D., Lange F.F., *Photoluminescence of hydrothermally epitaxied ZnO films*, Electrochimica Acta, 52, 2933 (2007)

TALKS

- 2008 (May) Advanced Photon Source (APS) Users Week 2008
Probing the Structural Transitions of a Glycine-Dependent Riboswitch
- *Discussed the use of small angle x-ray scattering in studying the various conformations of a RNA riboswitch*
- 2006 (Mar) Singapore Science Centre
Meet the Scientist Talk: The Electron Strikes Back
- *Popular science talk on quantum mechanics to secondary school students*

REFERENCES

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