

Simon Kit Sang, Chu

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EDUCATION

Ph.D. in Biophysics present
The University of California, Davis, Davis CA

M.Phil. in Physics 2016 - 2018
The Chinese University of Hong Kong, Hong Kong

- Academic advisor: Prof. Yi Wang
- Thesis title: Molecular Dynamics Studies of Disordered Proteins and Membrane Permeability

B.Sc. in Physics 2012 - 2016
The Chinese University of Hong Kong, Hong Kong

- Honor: Second Class Upper Division
- Major GPA: 3.505/4.00

PUBLICATION AND PRESENTATION

Affordable membrane permeability calculations: Permeation of short-chain alcohols through pure-lipid bilayers and a mammalian membrane (submitted) 01/2019
Publication

- Authors: Tse, Chi-Hang; Comer, Jeffrey; Chu, Simon Kit Sang; Wang, Yi; Chipot, Christophe

Biophysical Society Meeting 2018, San Francisco CA 02/2018
Poster presentation

- Title : Rigid Rod Model for the Disordered Domains of Ribosomal Stalk Proteins P1P2

RESEARCH EXPERIENCE

M.Phil. Projects 03/2017-
08/2018
Adviser: Prof. Yi Wang, Physics Department, The Chinese University of Hong Kong

- Developed coarse-grained random-rod model for disordered C-terminal tails of eukaryotic ribosomal stalk proteins P1P2 from molecular dynamics (MD) trajectory
- Constructed heterogeneous mammalian membrane as proposed physiological model and determined drug permeability through all-atom MD simulation

Senior Project and Experiment training 09/2015-
03/2017
Adviser: Prof. Yilin Wu, Physics Department, The Chinese University of Hong Kong

- Simulated agent-based population dynamics of bacterial growth coupled with bacteriophage invasion and steric interaction
- Trained in bacteria incubation techniques and phase contrast microscopy

Semester Project: Logistic Map 01/2016-
07/2016
Adviser: Prof. Pak Ming Hui, Physics Department, The Chinese University of Hong Kong

- Reproduced bifurcation diagram of the Logistic Map
- Numerically determined Feigenbaum constant from period-doubling bifurcation

Summer Visitor : Differential recognition by TIM proteins 06-08/2015

Adviser: Prof. Ka Yee Lee, Professor of Chemistry, The University of Chicago

- Determined protein orientation in lipid membrane through MD simulation with NAMD
- Determined membrane parameters from X-ray diffraction profile of dynamical lipid membrane
- Modified and parallelized X-ray diffraction parameterization code

Exchange Visitor : Rayleigh-Bénard turbulence simulation 01-05/2015

Host: Prof. Nigel Goldenfeld, Professor in Physics, University of Illinois, Urbana Champaign

- Explored nek5000 for Rayleigh-Bénard convection simulation in cylindrical geometry
- Analyzed modal oscillation in Rayleigh-Bénard convection

Semester Project : Plume extraction in Rayleigh-Bénard convection 09/2014-12/2014

Adviser: Prof. Keqing Xia, Physics Department, The Chinese University of Hong Kong

- Simulated Rayleigh-Bénard turbulence in 3-dimensional rectangular geometry with FLOWSI
- Investigated Prandtl and Nusselt number scaling with Rayleigh and Reynolds number
- Developed plume extraction scheme

AWARDS AND GRANTS

Yasumoto International Scholarship 2015

The Chinese University of Hong Kong

- Award for academic excellence among exchange students

CN Yang Scholarship 2015

Physics department, The Chinese University of Hong Kong

- Award for academic excellence among undergraduate physics students

Summer Undergraduate Research Experience (SURE) 2015

Physics department, The Chinese University of Hong Kong

- Travel grant for visiting The University of Chicago

TEACHING AND INSTRUCTIONS

Teaching Assistant 08/2016-07/2018

Physics department, The Chinese University of Hong Kong

- University Physics I : Mechanics, Fluids and Waves
- Methods in Theoretical Physics I : Sturm-Liouville problem, Heat and Wave equations, Integral transformations
- Methods in Theoretical Physics II : Complex integral, Laurent series, Series expansion of ODEs
- TA tutor for students in need

LEADERSHIP AND OUTREACH

Physics Graduate Society 08/2017-07/2018

Committee member, Physics Graduate Society

- Provided liaison between physics graduate students and faculty committees
- Organized events for physics graduate students
- Represented graduate students at faculty board meetings

SKILLS AND TECHNIQUES

Computation Linux and cluster operation, shell script, C and OpenMP, Python, Matlab, NAMD, GROMACS, AMBER, VMD

Wet lab Agar plate and culture medium preparation, bacteria incubation, phase contrast microscopy

LANGUAGES

Cantonese Native

English Fluent; 7.5/9.0 in IELTS; 104/120 TOEFL

Mandarin Intermediate