JAMES R. THOMPSON, D.PHIL

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PROFILE

- Scientific background at the cutting edge of physical and biochemical sciences in top institutions.
- **Advanced technical skills** - large-dataset analysis, optimization, physics simulations, algorithm development for the study of large noisy data, functional & OO programming, optimization and statistics.
- **Broad experience** at *Oxford* (Physical Chemistry), *Harvard* (Medical School) and *USC* (Engineering).
- **Effective** and **efficient** scientist. I work to deadlines, set and achieve goals rapidly. I always strive for high-quality results and simple elegant solutions to all my work.

EDUCATION

University of Oxford, UK **2005-2009**
Doctor of Philosophy
Wadham College - *Physical and Theoretical Chemistry Laboratory*

University of York, UK **2002-2005**
B.Sc. (Hons) Biochemistry

EMPLOYMENT

University of Southern California, Los Angeles, CA USA **2012- Present**
Postdoctoral Research Associate in the Viterbi School of Engineering

- Fundamental biophysical research on lipid bilayer membranes.
- Developed software library for data visualization, optimization and large image dataset analysis.
- Functional programming with Scala and Haskell. New contributor to open-source *Spire* scala numerics & typeclasses project.
- Project leader and postdoctoral mentor.

Harvard University, Boston, MA USA **2010- 2011**
Postdoctoral Research Fellow in Systems Biology at Harvard Medical School

- Researched and developed an imaging system for the study of zebrafish development.
- Conceptualized the design and developed simulations and software. Igor Pro, Matlab, Objective-C development.

Oxford Cytologic, Oxford, UK **2009-2010**
Start-up Co-founder and IP holder

- Helped to raise £500k from the John Fell Fund, Oxford University Challenge Seed Fund and BBSRC
- Developed and marketed business plan to angels, venture capitalists and acquired experienced management.
- Established collaborative trials of technology with top pharmaceutical companies.
- Filed two patent applications (Co-inventor UKIPO - 0913823.1, *contributor* UKIPO - 0716264.7)

University of Oxford, Oxford, UK **2009-2010**
Postdoctoral Research Assistant in Physical and Theoretical Chemistry

- Sponsored by John Fell Fund for postdoctoral work in biophysics and technology development.
- Technologies patented and spun out into a business venture.

EXPERIENCE

York Structural Biology Laboratory, York, UK **2004-2005**
Research Project Student - X-ray Crystallography

AstraZeneca UK Ltd., Alderley Edge, UK **July-Sept 2004**
Summer Internship - Analytical Chemistry

University of York - Department of Chemistry, York, UK **Aug-Sept 2003**
Summer Internship - Analytical Chemistry

Sun Microsystems Ltd., Sale, UK **July 1999**
Internship - Computer Systems Benchmarking

SKILLS

Major Scientific skills: Study of stochastic processes in biophysics. Monte Carlo simulations. Image analysis. Data analysis and optimization, detection of quantized jumps in time-series data. Experimental design and engineering.

Computing: Unix/Linux, Mac OS X, Windows, MS Excel, Adobe CS, Mathematica, Matlab, Igor Pro, LaTeX typesetting.
Low-Level programming - C, parallel GPU programming with nVidia CUDA 4.
OO programming: Java 7, JavaFX 2 GUI development, Objective-C - Cocoa, C++
Functional programming: Scala, Haskell, Clojure, sbt, gradle, *scalaz*, *spire*,
Databases: MySQL, H2, JDBC, *slick*
Version Control: *git*
Web: Play framework, JS, HTML5, CSS3, XML

Languages: English (Native), German (Conversational), French and Italian (Basic).

PEER-REVIEWED PUBLICATIONS

1. **Lipid Directed Protein Segregation in Giant Vesicles.** Jesper S. Hansen, James R. Thompson , Claus Hélix-Nielsen, Noah Malmstadt. (Communication) *Submitted. - Co-first author.*

2. **Constructing Droplet Interface Bilayers from the Contact of Aqueous Droplets in Oil.** Sebastian Leptihn , Oliver K. Castell , Bríd Cronin , En-Hsin Lee , Linda C. M. Gross , David P. Marshall , James R. Thompson , Matthew Holden, Mark I. Wallace. ***Nat. Protocols.*** (Article) **2013** 8(6), 1048 (Front Cover)

3. **Optical Stretching of Giant Unilamellar Vesicles with an Integrated Dual-beam Optical Trap.** Mehmet Solmaz, Roshni Biswas, Shalene Sankhagowit, James R. Thompson, Camilo Alves, Noah Malmstadt, Michelle Povinelli. ***Biomed. Opt. Exp.*** (Article) **2012** - 3(10), 2419

4. **Rapid Assembly of a Multimeric Membrane Protein Pore.** James R. Thompson, Bríd Cronin, Hagan Bayley and Mark I. Wallace. ***Biophys. J.*** (Article) **2011** 101**,** 2679

5. **Imaging Multiple Conductance States in an Alamethicin Pore.** Lydia M. Harriss, Bríd Cronin, James R. Thompson, Mark I. Wallace. ***J. Am. Chem. Soc.*** (Communication) **2011** 133, 14507

6. **In Vitro Reconstitution of Eukaryotic Ion Channels Using Droplet Interface Bilayers**. Sebastian Leptihn, James R. Thompson, J. Clive Ellory, Stephen J. Tucker, Mark I. Wallace. ***J. Am. Chem. Soc.*** (Article) **2011** 133, 9370

7. **Simultaneous Measurement of Ionic Current and Fluorescence from Single Protein Pores.** Andrew J. Heron, James R. Thompson, Bríd Cronin, Hagan Bayley and Mark I. Wallace. ***J. Am. Chem. Soc.*** (Communication); **2009** 131, 1652

8. **Droplet Interface Bilayers.** Hagan Bayley, Bríd Cronin, Andrew Heron, Matthew A. Holden, William L. Hwang, Ruhma Syeda, James Thompson and Mark Wallace. ***Mol. BioSystems.*** (Review) **2008** 4, 1191

9. **Enhanced Stability and Fluidity in Droplet on Hydrogel Bilayers For Studying Membrane Protein Diffusion.** James R. Thompson, Andrew J. Heron, Yusdi Santoso, Mark I. Wallace ***Nano Lett.*** (Letter) **2007** 12, 3875

10. **Direct Detection of Membrane Channels in Gels Using Water-in-Oil Droplet Bilayers.** Andrew J. Heron, James R. Thompson, Amy E. Mason, Mark I. Wallace. ***J. Am. Chem. Soc.*** (Article) **2007** 129, 16042

11. **Hot off the Press**. James R. Thompson ***Mol. Biosystems***. (Commentary) **2007** 3, 814

CONFERENCE PROCEEDINGS

Biophysical Society 2013

Biophysical Society 2012

Biophysical Society 2008

Nottingham University iBios 2009

Cambridge Department of Chemistry Single Molecule Chemistry Symposium 2007

PATENTS

Bilayers : UKIPO - 0913823.1