Zhen Lin Low

Research interests

- **Category theory**, especially applications to foundations of mathematics in general and homotopy theory in particular.

Education

- **Doctor of Philosophy**
  October 2012 – July 2016
  Department of Pure Mathematics and Mathematical Statistics, University of Cambridge
  Trinity Hall, Cambridge

  Thesis title: *Categories of spaces built from local models*
  Submitted: 29th February 2016
  Approved: 20th June 2016

- **Bachelor of Arts and Master of Mathematics**
  October 2008 – June 2012
  Emmanuel College, Cambridge

  Distinction in Part III of the Mathematical Tripos
  1st class honours in Parts IA, IB, and II of the Mathematical Tripos

  Part III essay topic: *Étale cohomology and Galois representations*

Papers

- Cocycles in categories of fibrant objects
  13 Feb 2015, arXiv:1502.03925, 36 pp.

- From fractions to complete Segal spaces
  with Aaron Mazel-Gee. In: *Homology, Homotopy and Applications*, volume 17.1 (2015), pp. 321–338.

- Revisiting function complexes and simplicial localisation
  30 Sep 2014, arXiv:1409.8062, 23 pp.

- Internal and local homotopy theory
  30 Apr 2014, arXiv:1404.7788, 27 pp.

- The heart of a combinatorial model category
  In: *Theory and Applications of Categories*, volume 31 (2016), pp. 31–62.

- The homotopy bicategory of $(\infty, 1)$-categories
  1 Oct 2013, arXiv:1310.0381, 31 pp.

- Universes for category theory
  18 Apr 2013, arXiv:1304.5227, 27 pp.

Scholarships and awards

- Cambridge Commonwealth Trust Scholarship
  awarded 2012–15

- Smith–Knight / Rayleigh–Knight Prize
  awarded 2014, for the essay 'The heart of a combinatorial model category'

- Braithwaite–Batty Scholarship
  elected 2009, re-elected 2010 and 2011

  Honorary Bachelor Scholarship
  re-elected 2012

  Braithwaite–Batty Prize
  awarded 2009, 2010, 2011, and 2012

  (These scholarships/prizes were awarded by Emmanuel College for excellence in exam results.)

Conference talks

- Categories of spaces built from local models
  100th Peripatetic Seminar on Sheaves and Logic, Cambridge, UK

- Another viewpoint on cartesian theories
  Categorical Logic Workshop, 3–4 Dec 2015, Stockholm, Sweden

- Cocycles in categories of fibrant objects
  Young Topologists' Meeting 2015, Écublens, Switzerland

- Generalising the functor of points approach
  International Category Theory Conference 2015, Aveiro, Portugal

- The heart of a combinatorial model category
  International Category Theory Conference 2014, Cambridge, UK

- Accessible categories and inaccessible cardinals
  International Category Theory Conference 2013, Sydney, Australia

Teaching experience

- Supervisor in *Linear Algebra*; *Groups, Rings and Modules*; *Geometry*; and *Complex Analysis/Methods*
  for Part IB mathematicians in Trinity Hall, 2014–15

- Supervisor in *Linear Algebra*; *Groups, Rings and Modules*; and *Geometry*
  for Part IB mathematicians in Trinity Hall, 2013–14

- Supervisor in *Vectors and Matrices*; *Numbers and Sets*; and *Groups*
  for Part IA mathematicians in Trinity Hall, 2013–14

- Supervisor in *Algebraic Geometry*
  for Part II mathematicians in Trinity College and Peterhouse, Lent 2013

- Supervisor in *Linear Algebra*
  for Part IB mathematicians in Emmanuel College, Michaelmas 2012

- Supervisor in *Category Theory*
  for Part III mathematicians, Michaelmas 2012

In Cambridge, 'supervision' refers to small-group teaching sessions, usually one hour per fortnight, two students per session.

Expository talks

- The method of universal instances
  Trinity Mathematical Society Symposium 2015, Cambridge, UK

- Toposes as localic and spatial groupoids
  Young Researchers in Mathematics 2013, Edinburgh, UK

- The humble arrow in mathematics
  Trinity Mathematical Society Symposium 2013, Cambridge, UK

Local seminar talks

- Another viewpoint on cartesian theories 24 Nov 2015

- Homological algebra as a stable homotopy theory 1 Sep 2015

- Small sheaves on large sites 18 Aug 2015

- The functor of points 29 Jan 2015

- A non-abelian Verdier hypercovering theorem 2 Dec 2014

- Sets for category theory 16 Oct 2014

- Internal homotopy theory via classical completeness 6 May 2014

- Introduction to simplicial homotopy theory 1 May 2014

- Model structures and derived functors, minus homotopy 14 Nov 2013

- The homotopy bicategory of $(\infty, 1)$-categories 15 Oct 2013

- Universes for category theory 7 May 2013

- Logic in a topos 24 Jan 2013

- What is … a topos? 17 Jan 2013

- Fibred categories and descent 25 Oct 2012

- Monadicity and descent 16 Mar 2012

- Bicartesian closed categories and logic 1 Dec 2011

Conferences and workshops attended

- 100th Peripatetic Seminar on Sheaves and Logic
  21–22 May 2016, Cambridge, UK

- Categorical Logic Workshop
  3–4 Dec 2015, Stockholm, Sweden

- Young Topologists' Meeting
  6–10 Jul 2015, Écublens, Switzerland

- International Category Theory Conference
  14–19 Jun 2015, Aveiro, Portugal

- British Mathematical Colloquium & British Applied Mathematics Colloquium
  30 Mar – 2 Apr 2015, Cambridge, UK

- Yorkshire and Midlands Category Theory Seminar
  19 Mar 2015, Sheffield, UK

- International Category Theory Conference
  29 Jun – 5 Jul 2014, Cambridge, UK

- International Category Theory Conference
  7–13 Jul 2013, Sydney, Australia

- Applications of Category Theory Workshop
  2–5 Jul 2013, Sydney, Australia

- Young Researchers in Mathematics
  17–20 Jun 2013, Edinburgh, UK

- British Mathematical Colloquium
  25–28 Mar 2013, Sheffield, UK

- 94th Peripatetic Seminar on Sheaves and Logic
  25 Mar 2013, Sheffield, UK

- 93rd Peripatetic Seminar on Sheaves and Logic
  14–15 Apr 2012, Cambridge, UK

SERVICE

- Interviewer for undergraduate admissions in mathematics
  Trinity Hall, December 2014

LANGUAGES

- English (native), Japanese, and Chinese