

# Jack Shotton

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CONTACT INFORMATION	5442 S Ellis Ave Chicago, IL 60615 USA  <a href="http://math.uchicago.edu/~jshotton">http://math.uchicago.edu/~jshotton</a> <a href="mailto:jack.shotton@gmail.com">jack.shotton@gmail.com</a>	mobile: +1 31253 68840
PERSONAL DETAILS	Full name: Jack George Shotton Date of birth: 30th July 1989 Citizenship: British	
EDUCATION	<b>Imperial College, London</b> <i>PhD in Mathematics</i> • Supervised by Professor Toby Gee. <b>Trinity College, Cambridge University</b> <i>MMath (Part III of the Mathematical Tripos)</i> • Passed with Distinction. <i>BA in Mathematics</i> • Fifth in year. <b>Portsmouth Grammar School</b>	<b>2011–2015</b>   <b>2010–2011</b>   <b>2007–2010</b>   <b>2000–2007</b>
EMPLOYMENT	<b>University of Chicago</b> <i>L. E. Dickson Instructor</i>  <b>Softwire</b> <i>Intern Developer</i>  <b>Government Communications Headquarters (GCHQ)</b> <i>Summer Student Mathematician</i>  <b>University of Cambridge</b> <i>Summer Research Student</i>	<b>2015–2018</b>   <b>Summer 2011</b>   <b>Summer 2010</b>   <b>Summer 2009</b>
PREPRINTS AND PUBLICATIONS	1. ‘Local deformation rings for $GL_2$ and a Breuil–Mézard conjecture when $l \neq p$ .’ <b>Algebra and Number Theory</b> 10, 2016, 1437–1475.  2. ‘The Breuil–Mézard conjecture when $l \neq p$ .’ <b>Duke Mathematical Journal</b> (to appear). Preprint at <a href="https://arxiv.org/abs/1608.01784">https://arxiv.org/abs/1608.01784</a> .	

3. ‘Local deformation rings for 2-adic deformation rings of  $G_{\mathbb{Q}_l}$ ,  $l \neq 2$ ’.  
Appendix to ‘On crystabelline deformation rings of  $\text{Gal}(\mathbb{Q}_p/\mathbb{Q}_p)$ ’ by Yongquan Hu and Vytautas Paškūnas. Preprint at <https://arxiv.org/abs/1702.06019>.
4. ‘On the category of finitely presented smooth mod  $p$  representations of  $GL_2(F)$ ,  $F/\mathbb{Q}_p$  finite.’  
Preprint at <http://arxiv.org/abs/1710.06003>.
5. ‘A local proof of the Breuil–Mézard conjecture when  $l \neq p$ ’  
In preparation.
6. ‘New cases of Ihara’s lemma for Shimura curves over  $\mathbb{Q}$ .’, with Jeffrey Manning.  
In preparation.

#### AWARDS

**Cecil King Travel Scholarship** **Autumn 2014**

Scholarship to visit Matt Emerton at the University of Chicago.

**International Mathematical Olympiad** **2005–2007**

Bronze, silver and gold medals in 2005, 2006 and 2007 competitions respectively.

#### TEACHING

**University of Chicago**

*L. E. Dickson Instructor*

**2015–2018**

- Full responsibility for four classes a year, including Introduction to Analysis and Linear Algebra, Honors Calculus, and Honors Basic Algebra.
- Advised one undergraduate reading project on class field theory, and co-advised (with Matthew Emerton) two other such projects.
- With Frank Calegari and Matthew Emerton, taught a course on algebraic number theory during the 2017 REU.

**Imperial College, London**

*Graduate Teaching Assistant*

**2012–2015**

Marked tests for various courses. Ran weekly problems classes. Designed and ran introductory session for entire first year.

**University of Cambridge**

*STEP student mentor*

**March 2008**

Taught a class of around 10 high-school students in a week long course aimed at helping students from state schools pass the Cambridge entry exams (STEP).

*Supervisor*

**2011–2012, 2015**

Taught groups of between one and three undergraduates in first year Numbers and Sets and third year Number Fields.

**UK Maths Trust**

*Deputy Leader, UK IMO team*

**2010–2012**

Helped train and look after a team of six students at the 2011 and 2012 International Mathematical Olympiads.

*Volunteer* **2007–2016**  
 Took sessions at and helped organise various training camps. Mentored schoolstudents by correspondence. Set and marked national maths competitions.

*Training Camp assistant* **2007–2015**  
 Helped at several training camps for talented mathematicians, including giving talks and running problem-solving sessions.

### **Various**

*Private tutor* **2012–2015**  
 One-on-one mathematics tutoring at high school and university level.

### TALKS

‘Local Galois deformation rings when  $l \neq p$ ’:

- University of Illinois Chicago number theory seminar, March 2017
- University of Illinois Urbana-Champaign number theory seminar, February 2016
- Northwestern University number theory seminar, February 2016
- University of Chicago number theory seminar, January 2016
- Midwest Number Theory Conference for Graduate Students and Recent PhDs, October 2015
- Number Theory Workshop, British Mathematical Colloquium, April 2015 (joint prize for best student talk)
- London number theory seminar, April 2015
- Workshop on Galois representations, Heidelberg, February 2015

‘The Breuil–Mézard conjecture’, TCC event day, Bristol, May 2013

‘Deformation theory of Galois representations’, Deformation Week in Oxford, April 2012

### SERVICE

**Seminar co-organisier** **2016–2018**  
 University of Chicago Number Theory Seminar, along with George Boxer

**Referee** **2015–present**  
 Journal of Number Theory, Transactions of the AMS

**MathSciNet reviewer** **2016–present**

**Conference organiser** **April 2015**  
 TCC event day (graduate student conference) in number theory