

**School of Mathematical Sciences  
University of Nottingham  
PhD studentship in Mathematical Sciences**

**Comparison between factorisation algebras and AQFT**

Supervised by Dr Alexander Schenkel

Quantum gauge theories are not only one of the main cornerstones of fundamental physics, but they also inspired exciting developments in mathematics. The aim of this project is to study a particularly simple, but rich class of topological quantum gauge theories from the perspective of algebraic quantum field theory. For this we shall employ modern mathematical techniques from homotopical algebra and operad theory. The results should be compared to Lurie's classification of locally constant factorisation algebras by  $E_n$ -algebras.

This studentship will be funded by the Royal Society via the Research Fellows Enhancement Award "Comparison between factorisation algebras and AQFT". It is associated to the Royal Society University Research Fellowship "Homotopical algebra and quantum gauge theories" by Dr Alexander Schenkel.

**Summary:** UK/EU students - Tuition Fees paid, and full Stipend at the RCUK rate, which is £14,553 per annum for 2017/18. There will also be some support available for you to claim for limited conference attendance. The scholarship length will be 4 years.

**Eligibility/Entry Requirements:** We require an enthusiastic graduate with a 1st class degree in Mathematics (or Mathematical Physics), preferably at MMath level, or an equivalent overseas degree. Preference will be given to those candidates who already have some experience in a relevant area of pure mathematics, e.g. algebraic topology, category theory or homological algebra.

**Apply:** This studentship is available to start from October 2018 or earlier. To apply please visit the University of Nottingham application page:  
<http://www.nottingham.ac.uk/pgstudy/apply/apply-online.aspx>

For any enquiries please email: [alexander.schenkel@nottingham.ac.uk](mailto:alexander.schenkel@nottingham.ac.uk)

**This studentship is open until filled. Early application is strongly encouraged.**