

## Dr Nicola Wilkin BSc, PhD

Senior Lecturer in Theoretical Physics

**[School of Physics and Astronomy \(/schools/physics/index.aspx\)](/schools/physics/index.aspx)**

### Contact details

**Telephone** 44 (0)121 414 4661

**Email** [n.k.wilkin@bham.ac.uk](mailto:n.k.wilkin@bham.ac.uk) (<mailto:n.k.wilkin@bham.ac.uk>)

School of Physics and Astronomy  
University of Birmingham  
Edgbaston  
Birmingham  
B15 2TT  
UK



### About

Nicola Wilkin is a lecturer in Theoretical Physics. Her work in ultracold gases and vortices in mesoscopic superconductors.

Nicola has led the School adopting online mathematical testing (STACK) for formative learning and holds a CLAD bid to enable further development.

She has a long standing interest in improving the representation of Women in Physics and has been Hon Secretary of the Institute of Physics Women in Physics Group as well as being a member of the University Diversity Forum and leading the School's JUNO submission.

### Qualifications

- PhD in Theoretical Physics, University of Manchester, 1993
- BSc Hons, Physics with Mathematics, University of Southampton, 1990

### Biography

Nicola Wilkin obtained her PhD from the University of Manchester, working on vortex crossing in superconductors.

After postdoctoral positions at the University of Sheffield and Imperial College following this she became a member of staff at the University of Birmingham.

Seizing the opportunity of transferring her understanding of vortices in superconductors she and her collaborators developed the framework for an understanding of the rotation of ultracold gases. This set of papers which links ultracold gases, superfluids and fractional quantum hall effect have become very well cited.

Adobe Flash Player or QuickTime is required for video playback. [Get the latest Flash Player](#) [Get the latest version of QuickTime](#)

### Teaching

- Head of Year 2 Physics and Astronomy
- Y1 Mathematics
- Y1 Dynamical Systems
- Y1 Nonlinear Systems
- Y2 Tutorials
- Y3 Current Topics in Theoretical Physics
- Y4 Project Supervision
- School representative on Education Enhancement Subcommittee EPS

### Postgraduate supervision

- Supervision of research PhDs in ultracold gases and vortex flow in superconductors.

## Research

### RESEARCH THEMES

- Ultracold gases:
- Rotation of very dilute gases
- Superconductors:
- Investigation of vortex flow in mesoscopic superconducting channels.

## Other activities

- Member of Council (Trustee) Institute of Physics
- Hon Treasurer of QQQ Group, Institute of Physics

## Publications

- Parke, M.I., Wilkin N.K., Gunn J.M.F, Bourne A.(2008) Exact vortex nucleation and cooperative vortex tunneling in dilute Bose-Einstein condensates Physical Review Letters 101, 110401
- Cooper,N.R. Wilkin,N.K. Gunn, J.M.F. (2001) Quantum Phases of Vortices in Rotating Bose-Einstein Condensates □ Physical Review Letters 87, 120405
- Wilkin,N.K. Gunn, J.M.F. (2000) Condensation of “Composite Bosons” in a Rotating BEC □ Physical Review Letters 84, 6-9
- Wilkin,N.K. Gunn, J.M.F. (1998) Do Attractive Bosons Condense? □ NK Wilkin, JMF Gunn, RA Smith □ Physical Review Letters 80, 2265-2268

