Curriculum Vitae – Dr Jack Binysh

Personal Information

Jack Binysh,
Centre For Complexity Science,
Department of Mathematics, the University of Warwick.
Email: j.binysh@warwick.ac.uk
Website: warwick.ac.uk/fac/sci/mathsys/people/students/2014intake/binysh/

Employment

Early Career Fellow, Institute of Advanced Study, the University of Warwick (April 2019 –).

Education

PhD in Mathematics of Systems, the University of Warwick. Thesis Advisor: Dr Gareth Alexander. Title: Construction and Dynamics of Knotted Fields in Soft Matter Systems (2015–2019).

MSc in Mathematics of Systems, Distinction, the University of Warwick (2014–2015).

MPhys Physics, 1st class, the University of Oxford (2009–2013).

Publications

J. Binysh, Ž. Kos, G. P. Alexander, M. Ravnik and T. Machon, Growth and Decay of Hopf Solitons in Frustrated Cholesterics, in preparation.

Ž. Kos, J. Binysh, G. P. Alexander and M. Ravnik, Energy Injection and Dissipation in Three-dimensional Active Nematics, in preparation.

J. Binysh, J. Pollard and G. P. Alexander, Singular Lines and Bend Geometry in Liquid Crystals, to be submitted to Phys. Rev. Lett.

J. Binysh, Ž. Kos, S. Čopar, M. Ravnik and G. P. Alexander, Three-Dimensional Active Defect Loops, arXiv: 1909.07109, submitted to Phys. Rev. Lett.

J. Binysh, C. Whitfield and G. P. Alexander, Stable and Unstable Vortex Knots in Excitable Media, Phys. Rev. E **99**, 012211 (2019).

J. Binysh and G. P. Alexander, Maxwell's Theory of Solid Angle and the Construction of Knotted Fields, J. Phys. A **51**, 385202 (2018).

Conferences (*Talk/Poster*)

Three-dimensional active defect loops, The Physics of Living Systems, the University of Warwick (September 2019).

Knotted fields in soft matter and how to make them, the University of Ljubljana (July 2019).

The geometry of bend in liquid crystals, DIEP Workshop on Topology and Broken Symmetries, the University of Utrecht (July 2019).

The geometry of bend in liquid crystals, IOP Theory of Condensed Matter conference, the University of Warwick (June 2019).

Construction and dynamics of knotted fields in soft matter systems, IAS seminar series, the University of Warwick (May 2019).

Hot Topics: Shape and Structure of Materials, MSRI, the University of California, Berkeley (October 2018).

Maxwell's theory of solid angle and the construction of knotted fields, Young Researchers in Mathematics, the University of Southampton (July 2018).

The construction of knotted fields, Soft Matter and Topology Summer School, Korean Institute of Advanced Study (July 2018).

The construction of knotted fields, IOP Theory of Condensed Matter conference, the University of Warwick (June 2018).

Knotted vortices in the FitzHugh-Nagumo model, the University of Warwick Soft Matter Seminar Series (Jan 2018).

Knotted vortices in the FitzHugh-Nagumo model, the University of Warwick Postgraduate Physics Seminar Series (March 2017).

Awards, Prizes

Awarded €2000 as part of EUTOPIA COST Action CA17139, Short Term Scientific Mission to the University of Ljubljana (July 2019).

Awarded $1000 to attend Hot Topics MSRI workshop (October 2018).

Awarded £3800 David Crighton Fellowship working with Professor Ray Goldstein at DAMTP, University of Cambridge (Sept–Dec 2017).

Ranked first in cohort for MSc in Mathematics of Systems (2015).

BP prize for best Theoretical MPhys Project, the University of Oxford (2013).

Lord Crewe scholar, Trappes exhibitionist, Lincoln College, the University of Oxford (2013).

Teaching

I have either been a supervisor or teaching assistant for the following Warwick modules:

MA4K8: Maths in Action (2019).
MA124: Maths by Computer (2019).
MA177: Programming for Scientists (2019).
MA137: Mathematical Analysis (2018–2019).
MA133: Differential Equations (2018–2019).
PX148: Mechanics and Special Relativity (2018–2019).

I have also run individual support sessions for struggling students on the Warwick Mathematics course (2018–2019).

References

Dr. Gareth Alexander (g.p.alexander@warwick.ac.uk)
Dept. of Physics and Centre for Complexity Science, Zeeman Building, The University of Warwick, Coventry, CV4 7AL, United Kingdom.
Prof. Miha Ravnik (miha.ravnik@fmf.uni-lj.si)
Faculty of Mathematics and Physics, University of Ljubljana, Jadranska 19, 1000 Ljubljana, Slovenia.