

Scott Morgan

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Education

Academic Qualifications

- **Cardiff University**
○ *PhD Applied Mathematics: In Progress* 2014 – Present
- **Cardiff University**
○ *MMath Mathematics: First Class Honours, Best in School* 2010 – 2014

Research Projects

- **PhD Thesis: Stability of Periodically Modulated Rotating Boundary Layers**
 - **Supervisor:** *Dr. Christopher Davies*
 - **Synopsis:** *To investigate the stabilising effects of adding modulation to a rotating disk boundary layer.*
- **MMath Thesis: Topics in Oscillatory Flow**
 - **Supervisor:** *Dr. Christopher Davies*
 - **Synopsis:** *To investigate the connection between the local and global stability analyses of an oscillatory Stokes layer.*
- **Undergraduate Project (CUROP): Boundary Layer Flows with an Oscillatory Rotation Rate**
 - **Supervisor:** *Dr. Christopher Davies*
 - **Synopsis:** *To develop an efficient numerical algorithm for solving a system of nonlinear time-dependent differential equations.*

Academic Awards

- **Recognition for Outstanding Contribution (2017)** - *Society of Industrial and Applied Mathematics*
- **Best in School Prize (2014)** - *Cardiff University*
- **Second Year Prize (2013)** - *Cardiff University*
- **First Year Prize (2012)** - *Cardiff University*
- **Calculus Prize (2011)** - *Cardiff University*

Teaching Experience

- **Cardiff University**
○ *Associate Lecturer* January 2018 – Present
 - Delivered a second year undergraduate module *Elementary Fluid Dynamics* for 70 students.
 - Achieved 96% overall positive final feedback from students.
- **Bridgend College**
○ *Computing Consultant and Associate Lecturer* September 2016 – Present
 - Devised, composed and delivered units for BTEC Levels 2, 3 & 4 in Automated Systems, Control Systems and Website Design & Development.
 - Delivered CPD training sessions to staff at Bridgend College using Raspberry Pi, Python and BBC Micro:bit.
 - Worked closely with industrial partners and participated in regional and national events such as the Urdd Eisteddfod, World Skills, STEM fairs and Senedd exhibitions to showcase projects to local schools, businesses and Government.
- **Cardiff University**
○ *STEM Engagement Officer* March 2018 – Present
 - Personally selected to design and deliver intensive courses in the physical sciences as part of the university's *step-up* scheme. Project involved tutorials and residential summer schools for A-Level students from traditionally disadvantaged backgrounds.
 - Responsible for First Campus primary school project on wearable technology using BBC Micro:bit.

- Cardiff University**

 - *Postgraduate Demonstrator* *October 2014 – Present*

 - Devised, composed and delivered an 11-week intensive course titled *An Introduction to MATLAB* to final-year undergraduates and postgraduates.
 - Led weekly classroom based tutorial sessions on a wide variety of topics including Calculus, Group Theory, Analysis, Differential Equations and Computing.
 - Instructor in weekly drop-in sessions, handling a wide range of mathematics-based queries from students in many fields including Engineering, Physics, Economics, Biology and Chemistry.
- Further Mathematics Support Programme**

 - *Session Tutor* *January 2018 – Present*

 - Designed and delivered a series of sessions designed to teach students a range of subjects for Further Mathematics A-Level.
- The Brilliant Club**

 - *Scholars Programme Tutor* *January 2018 – Present*

 - Successful in application to Brilliant Club PhD Scholars programme.
 - Developed and ran short courses aimed at talented KS3 and KS4 students from traditionally disadvantaged backgrounds.
 - Received pedagogical training through intensive workshop sessions.
- Picademy**

 - *Raspberry Pi Certified Educator* *February 2017 – Present*

 - Successful in application to Brilliant Club PhD Scholars programme.
 - Developed resources and delivered extensive CPD sessions to staff at Bridgend College based around control technologies, computing and programming.
- STEM Learning**

 - *STEM Ambassador* *February 2017 – Present*

 - Organised and ran several workshops based around computing and control technologies at primary and secondary schools in Bridgend, Cardiff and Bristol.

Other Notable Contributions

- **Founding member of UKFN SIG on boundary layers and complex rotating flows** *(2017 – Present)*

 - Heavily involved in SIG activities including conference organisation and collaborations across universities.
 - Awarded competitive £600 grant for *short research visits* to Leicester, Warwick and Coventry to develop collaborative ties.
- **Cardiff SIAM-IMA Student Chapter President** *(2015 – 2017)*

 - Secured competitive grant funding totalling over £2000 for conference travel and public engagement workshop sessions including external workshops on robotics, 3D printing and Raspberry Pi. Article published in *Mathematics Today*.
 - Received *Recognition for Outstanding Contribution* award for public engagement and chapter activities.
 - Organised and hosted the SIAM National Student Chapter Conference at Cardiff University.
 - Arranged highly successful, weekly *popular science* talks delivered by and to postgraduate students.
 - Organised *3-minute thesis* competition for postgraduate students.
 - Oversaw creation of new *SIAM-IMA* chapter after securing grant funding from the IMA.
 - Developed chapter from small group of students to a recognised part of the school with an extended committee and many members from both the student and staff populations.
- **BSA Cardiff Committee Member** *(2017 – Present)*

 - Actively involved in organisation of activities including Cardiff *Science Cafe* and events for British Science Week.

Publications

- Scott Morgan, Christopher Davies, *Linear stability analysis of steady and temporally periodic flow configurations using a velocity-vorticity formulation (in draft)*
- Scott Morgan, Christopher Davies, *Stability of rotating disk boundary layers with a periodically modulated rotation rate (in draft)*

Funding Awarded

○ Research:

- **EPSRC Postgraduate Research Studentship** (2014-2018)
£13,863 p/a (3.5 years)
- **SIAM Student Travel Award** (2018)
£70
- **UKFN Short Research Visit Grant** (2018)
£600
- **SIAM UKIE Travel Award** (2018)
£80
- **SIAM SNSCC Travel Award** (2017)
€150
- **SIAM Student Travel Award** (2017)
\$800
- **ERCOFTAC Travel Award** (2017)
€220
- **SIAM Student Representative Award** (2016)
\$700
- **Cardiff Undergraduate Research Opportunities Program (CUROP)** (2013)
£1600 (8 weeks)

○ Outreach:

- **Royal Society of Chemistry Large Outreach Funding** (2018-2019)
£10000
- **First Campus Primary Aspirations** (2018)
£2500
- **LMS Education Grant** (2018)
£425
- **IMA Education Grant** (2017)
£400
- **Cardiff University Widening Access Funding** (2017)
£500

Major Conferences & Workshops

○ Hosted & Organised:

- 5th SIAM National Student Chapter Conference *Cardiff University (2016)*

○ Invited Talk:

- Engineering Department Seminar Series *Warwick (2018)*
- Department of Engineering Seminar Series *Leicester (2017)*
- Cardiff Science Cafe *Cardiff (2017)*

○ Contributed Talk:

- Welsh Mathematics Colloquium *Gregynog (2018)*
- PyDiff *Cardiff (2018)*
- DiPaRT *Bristol (2017)*
- UKFN SIG: Boundary layers and complex rotating flows *Warwick (2017)*
- SIAM Annual Meeting *Pittsburgh (2017)*
- ERCOFTAC SIG33 Workshop *Siena (2017)*
- 6th SIAM National Student Chapter Conference *Galway (2017)*
- Welsh Mathematics Colloquium *Gregynog (2017)*
- Welsh Mathematics Colloquium *Gregynog (2016)*

○ **Contributed Poster:**

- SIAM UKIE Annual Meeting
- SIAM UKIE 20th Annual Meeting

University of Southampton (2018)
University of Cambridge (2016)