

Gregynog 2022 Timetable

Monday 23rd May – Seminar Room 1

| Time | Title | Speaker |
|---------------|--|----------------|
| 16:00 – 16:25 | Tea: Blayney Room | |
| | | |
| 16:25 – 16:30 | Welcome | |
| 16:30 – 17:30 | An introduction to Thompson's groups and their generalisations | Brita Nucinkis |
| 17:30 – 18:30 | Industrial Mathematics: What is it good for? | Chris Breward |
| 18:30 – 18:50 | Levelling Up: Maths in Wales | Tony Hill |
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| 19:00 - 20:00 | Dinner: Dining Room | |
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| 20:15 – 21:00 | Welsh Three Minute Thesis (3MT) competition | |

Tuesday 24th May

| Time | Seminar Room 1 | Speaker | | |
|---------------|--|-------------------|--|--------------------|
| 8:00 – 9:00 | Breakfast: Dining Room | | | |
| 9:00 – 10:00 | A survey of mutually unbiased bases (part I) | Stefan Weigert | | |
| 10:00 – 11:00 | Non-stationarity in extreme value models | Philip Jonathan | | |
| 11:00 – 11:30 | Tea: Blayney Room | | | |
| 11:30 – 12:30 | On automorphism groups of Cantor Algebras | Brita Nucinkis | | |
| 12:30 – 12:50 | Quaternary Lattices and Elliptic Curves | Dan Fretwell | | |
| 13:00 – 14:00 | Lunch: Dining Room | | | |
| Time | Seminar Room 1 | Speaker | Seminar Room 2 | Speaker |
| 14:00 – 14:20 | On trusses | Tomasz Brzezinski | A droplet in an oscillating flow field using Stokes flow | Philip Trevelyan |
| 14:20 – 14:40 | Cohomology of semi-cosimplicial objects arising from set theoretic solutions to the Yang-Baxter equation | Chance Harris | Granular flows in three-dimensions | Tom Barker |
| 14:40 – 15:00 | Markovianity and the Thompson group F | Claus Köstler | A Conservative Level-Set Method for Viscoelastic Rising Bubbles | Will Doherty |
| 15:00 – 15:20 | Bundles of Algebras - Dixmier-Douady theory and its Generalisations | Ulrich Pennig | A 3-player game theoretic model of a choice between two queueing systems with strategic managerial decision making | Michalis Panayides |
| 15:20 – 15:40 | The Weyl, The SSMCs and The Chern Character | Sam Richardson | Where do bats sleep? Locating bat roosts using a mixture of diffusion modelling and Bayesian statistics | Lucy Henley |
| 15:40 – 16:00 | Stochastic and Semiclassical Mechanics | Andrew Neate | Automated Condition Monitoring using Artificial Intelligence | Ieuan Griffiths |
| 16:00 – 16:30 | Tea: Blayney Room | | Tea: Blayney Room | |

Tuesday 24th May - continued

| Time | Seminar Room 1 | Speaker | Seminar Room 2 | Speaker |
|---------------|---|----------------------|---|-----------------------|
| 16:30 – 16:50 | Semiheaps in Quantum Mechanics | Andrew James Bruce | Local optimisation of Nyström samples through stochastic gradient descent | Matt Hutchings |
| 16:50 – 17:10 | Aspects of measurement incompatibility in quantum information theory | Jukka Kiukas | Limit profile for perturbed Choquard equation | Damiano Greco |
| 17:10 – 17:30 | Measures of non-classicality in optomechanical systems | Alexander Pitchford | Mammary maintenance: polarity driven pattern formation in bilayer tissues | Joshua Moore |
| 17:30 – 17:50 | The Asymmetry Function of Regular Schrödinger Operators | Karl Michael Schmidt | Hybrid model for rainfall data | Eferhonore Efe-Eyefia |
| 17:50 – 18:10 | An existence result to a nonlinear Schrödinger-Poisson system involving a non-constant charge density | Tomas Dutko | Big Data Analytics for Predictive Maintenance at Tata Steel | Becky Peters |
| 18:10 – 18:30 | Integer Matrix Factorisation and the Quadratic Form Obstruction | Matthew C Lettington | PCA-based decompositions of dependence in extremes | Michela Corradini |
| 18:30 – 18:50 | The Maximal Caratheodory Rank problem | Mark Hogan | Sum Systems | Ambrose Law |

Sesiwn Cyfrwng Cymraeg - Welsh Medium Session (in Welsh) - Weaver Room

| Time | Title | Speaker |
|---------------|--|-----------------|
| 16:30 – 17:30 | Gwrthdroi tebygoliaethol: synhwyro o bell i nodweddu ffynonellau nwyon atmosfferig | Philip Jonathan |
| 17:30 – 17:50 | Profion ystadegol drwy amcangyfrif entropi Rényi | Dafydd Evans |

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| 19:00 - 20:00 | Dinner: Dining Room | Dinner: Dining Room |
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Wednesday 25th May

| Time | | | | |
|---------------|---|-----------------------|---|--------------------|
| 8:00 – 9:00 | Breakfast: Dining Room | | | |
| Time | Seminar Room 1 | Speaker | Seminar Room 2 | Speaker |
| 9:00 – 9:20 | An Energy-Based, always Index ≤ 1 and Structurally Amenable Electrical Circuit Model | John Pryce | Using Predictive and Prescriptive Analytics Within Hospital Services for Elderly and Frail Patients | Elizabeth Williams |
| 9:20 – 9:40 | Structural break or just a pulse? Inside the Bitcoin system. | Gabriela Filipkowska | What's cool about In Vitro fertilisation? | Timothy Ostler |
| 9:40 – 10:00 | Embedding $K5$ and $K3, 3$ on orientable surfaces | Andrei Gagarin | Modelling iron acquisition by fungi | Graeme Boswell |
| 10:00 – 10:20 | Generalised Stirling operators, with Applications | Chadaphorn Punkumkerd | Using SEIR Models to Simulate the Spread of SARS-CoV-2 | Nicholas Andrews |
| 10:20 – 10:50 | Tea: Blayney Room | | Tea: Blayney Room | |
| 10:50 – 11:50 | Removing SO_2 from gas: the mathematics of reactive filtration | Chris Breward | | |
| 11:50 – 12:50 | A survey of mutually unbiased bases (part II) | Stefan Weigert | | |
| 13:00 – 14:00 | Lunch: Dining Room | | Lunch: Dining Room | |