Sunday 26 February
Annual Symposium & Annual Dinner

Monday 3 March, 8:30PM
Escape from the ivory tower: the Haskell journey
Prof Simon Peyton Jones

Haskell is my first baby, born slightly before my son Michael, who is now in his mid-20s. From somewhat academic beginnings as a remorselessly pure functional programming language, Haskell has evolved into a practical tool used for real applications and, amazingly, is still in a state of furious innovation. In this talk I'll discuss Haskell's birth and evolution, including some of the research and engineering challenges we faced in design and implementation. I'll focus particularly on the ideas that have turned out, in retrospect, to be most important and influential, as well as sketching some current developments and making some wild guesses about the future. It has been a long journey, but it starts at Trinity College, where I was a maths undergraduate, and Arthur Norman first introduced me to the joy and beauty of functional programming.

Monday 13 March, 8:30PM
A problem about triples of integers
Prof Tim Gowers

I shall talk about a problem that sounds like a reasonably easy IMO-style question, but which, rather surprisingly, is still unsolved. I shall talk about some non-trivial partial results, which are joint work with Jason Long, that fall well short of what is believed to be true.

TMS Committee 2016/17

If you have any enquiries, please feel free to contact us via the email addresses below.

President: George Fortune
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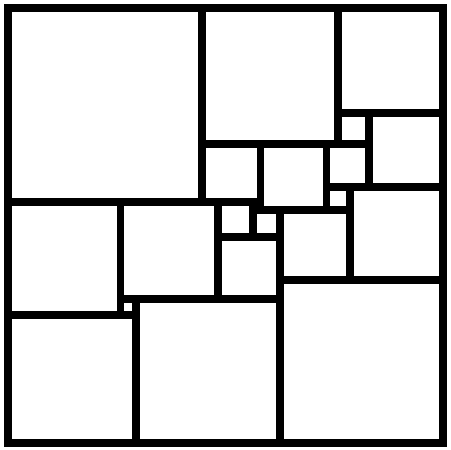
The Winstanley Lecture Theatre

Walk along Trinity Street to get to the Great Gate entrance of Trinity College. Opposite the Great Gate, there is a gate to Whewell's Court on the other side of the street. After the first arch, go up the stone stairs and turn left at the second turn. Once you see some stairs on both your left and right, go up the stairs on the right and the theatre is through the doors.
If you cannot find it, then please ask the porters of Trinity College for directions.

Trinity Mathematical Society

Termcard Lent 2017



The squared square, a square with integral side lengths with smaller such squares, is the logo for the TMS. Can you work out how to do it?

The Trinity Mathematical Society, or TMS, was founded by a group of undergraduates at Trinity College, Cambridge in 1919 to promote a discussion about subjects of mathematical interest. The society, we believe, is the oldest surviving subject society at university in the country. At this moment, we have over 800 members across Cambridge. We hold numerous talks from esteemed academics and industry professionals, who give up an hour of their free time to explain a mathematical topic they are passionate about. We hope to see you there!

Events

Monday 23 January, 8:30PM

Logic in other universes

Dr Tamara Von Glehn

When doing ordinary mathematics, we don't usually think too hard about exactly what logical rules are being used. But sometimes using for example the law of excluded middle or the axiom of choice can have unexpected consequences. In this talk I will explore some alternatives to classical logic. There are other 'mathematical universes', or toposes, in which different logical axioms can hold. I will introduce some of the structures used to express this logic, and describe what mathematics can look like inside a topos.

25 January – 1 February

Cambridge Puzzle Hunt

There will a broad spectrum of puzzle styles ranging from cryptic, picture, word, logic and a whole lot more. The aim of each puzzle is to reveal a hidden word - it is up to you to figure out how! Team up with up to four other students and compete for prizes.
Visit https://cph.soc.srcf.net/ to register.

Monday 30 January, 8:30PM

Stretching, bending, twisting and coiling
how to build a fluid-mechanical sewing machine

Prof John Lister

Idlers at breakfast watching a stream of honey falling from a knife, may notice it buckle and coil as it reaches the toast. What happens if you move the toast (or the knife) steadily sideways? This talk will outline the mathematical description of the dynamics of a falling viscous thread, with possible diversions via chocolate fountains and Vienetta ice-cream.

Monday 6 January, 8:30PM

Hunting for viral packaging signals

Dr Julia Gog

Influenza has a genome split into several segments, and this complicates virus particle assembly as each particle must have one of each of the segments. This means that each of the RNA segments must contain some signal, and that this signal ought to be fairly conserved. Is this enough to go and hunt them down using mathematics? The answer turns out to be yes. However, this required some creativity in algorithm design, drawing inspiration from a number of apparently unrelated problems. This hack seems to work, but leaves some interesting mathematical problems. I'll also briefly talk about some of the other problems in influenza and infectious disease that interest me, and general joys and challenges of being a mathematician trying to research biology.

Monday 13 February, 8:30PM

Multiple Random Walks

Dr Thomas Sauerwald

Consider a simple random walk on a finite network. The expected time it takes for a single walk to visit all nodes is a well-studied quantity and has been computed for many topologies including paths, grids, random graphs and hypercubes. But how long does it take for two or more independently running random walks? This talk will explain why this may be an interesting question and present a few surprising results.

Monday 20 February, 8:30PM

Spherical squirmers - models for swimming micro-organisms: how a Tripos question led to a new field of research.

Prof Tim Pedley

In 1952,Sir James Lighthill (FT) introduced the simplest possible model of a swimming micro-organism of finite size, intended as a model of a single-celled protozoan covered in beating cilia. The model consisted of a sphere, on the surface of which material points undergo small-amplitude oscillations. In 1971, Lighthill's student, John Blake (FT), completed the calculations and in particular showed how to model the 'metachronal' wave patterns exhibited by beating cilia. In 1986 the speaker set a Part II Tripos question, to analyse an even simpler model consisting of a sphere whose surface moves tangentially with time-independent velocity: a steady spherical squirmer. This has led to a substantial body of research on the optimisation pf the swimming and nutrient uptake of individual squirmers (Eric Lauga, FT), and on the hydrodynamic interactions between pairs of steady squirmers and their influence on self-diffusion in suspensions. The final topic describes measurements and modelling of metachronal waves in Volvox, the only truly spherical multi-celled 'organism', culminating in the prediction of the mean swimming speed and angular velocity of free-swimming Volvox. The predictions are compared with experimental observations. [FT ≡ Fellow of Trinity]