Trinity Mathematical Society

Termcard Michaelmas 2017
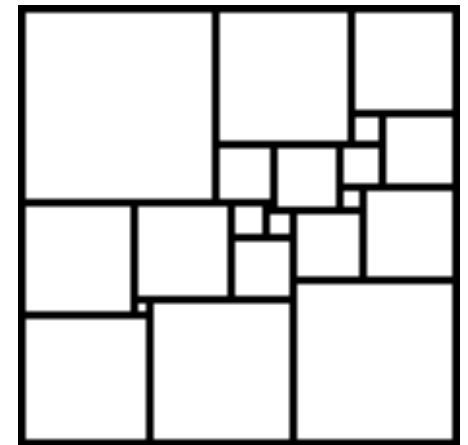
The squared square, a square with integral s lengths with smaller such squares, is the logo the TMS. Can you work out how to do it?

The Trinity Mathematical Society, or TM was founded by a group undergraduates at Trinity Colleg Cambridge in 1919 to promote discussion about subjects of mathematic interest. The society, we believe, is t oldest surviving subject society university in the country. At this mome we have over 800 members acro Cambridge. We hold numerous talks fro esteemed academics and indust professionals, who give up an hour of the free time to explain a mathematical to they are passionate about. We hope to s you there!

TMS Committee 2017/18

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

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Vice-President: Damon Zhong
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Membership Secretary: Peter Andreev
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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.

Monday 5 March, 8:30PM
The Mathematics of Spin
Prof Colm-Cille Caulfield
Winstanley Lecture Theatre

Dynamical systems where there is significant rotation or "spin" are (perhaps) surprisingly common. In this talk, I will discuss the fascinating, and often deeply counter-intuitive, mathematics and physics underlying several examples of interest, including fidget spinners, sport balls, hurricanes and, of course, cocktails.

Events

Monday 22 January, 8:30PM
Loop Erased Random Walks, Uniform Spanning Trees and Percolation
Dr Sebastian Andres
Winstanley Lecture Theatre

In graph theory spanning trees have been investigated already since the 19th century. They appear for instance as objects in a number of algorithms. On the other hand, in modern probability theory certain random spanning trees, so called uniform spanning trees, have had a fruitful history. Most notably, around the turn of the millennium the study of these spanning trees led Oded Schramm to introduce the SLE process, work which has revolutionised the study of two dimensional models in statistical physics. One reason for the importance of uniform spanning trees is their intimate relation to another model, the loop-erased random walks.

In this talk we will introduce both models and explain their connection by means of Wilson's algorithm. In the last part we will discuss some relations to percolation theory.

Monday 5 February, 8:30PM
A Tour of the Mandelbrot Set
Dr Holly Krieger
Winstanley Lecture Theatre

The Mandelbrot set is a famous image, but its mathematical content is much less widely known. We'll take a mathematical walk around the Mandelbrot set, visiting the minibrots and the Feigenbaum point. We'll stop at the rabbit, corabbit, and airplane, and answer the question: what happens when you twist the ears of the rabbit? We'll find the freshman sum and the Fibonacci sequence. Finally, we'll provide one answer to the question every mathematician wonders when they first meet the Mandelbrot set: why do we care about this pretty picture?

Monday 19 February, 8:30PM
Adventures in Algebraic Path Problems
Dr Tim Griffin
Winstanley Lecture Theatre

The classic problem of finding shortest paths in a directed graph can be generalised to finding paths taking path weights in a large class of semirings. This approach has been developed over the last fifty years, with many interesting applications. However, if we try to model some existing Internet routing protocols using semirings we see that the distributivity law $[a(b+c) = ab + ac]$ is often violated. Since distributivity is vital in semiring theory, we are forced to explore what, if anything, can be accomplished w such "impoverished" algebraic structures.

Sunday 25 February
TMS Symposium
Various Speakers
Winstanley Lecture Theatre

The TMS Symposium and annual dinner our largest event of the year. All day, variety of speakers, including Pl students, Fellows and visiting speake will discuss their research in all areas mathematics. This is open to all and the is no need to stay for the whole event; fe free to just drop in on talks you fi particularly interesting. Speakers a times TBC.