Annual Conference - 2009

April 14-17 Robinson College, Cambridge

supporting mathematics in education

Mathematics, Yesterday, Today And In The Future…

Have you thought how you could use the history of mathematics in your teaching?
Would you like to hear some of the top speakers on communicating and teaching mathematic?
Would you like a choice from over 50 workshop sessions full of ideas for enriching the teaching or appreciation of mathematics?

From **April 14-17 2009**, the conference will be held at **Robinson College, Cambridge**. As well as hearing top speakers, in the workshop sessions there is a choice of primary, secondary, post-16 or general topics. A particular theme this year is the history of mathematics, and a special history day is embedded in the programme. Two special sessions will look at the future of mathematics teaching…from the British standpoint, and also with a wider view that fully considers the international context of successful mathematics teaching.

Please check the MA web-site www.m-a.org.uk for conference updates and any changes to the programme.

This year space is limited, so please book quickly to avoid disappointment!

The programme at a glance

Day 1 April 14	Day 2 April 15 General Programme with focus on History	Day 3 April 16 Primary Programme	Day 3 April 16 General Programme	Day 4 April 17 General Programme
Registration *12noon - 2pm*	History Day Opening Lecture *Peter Ransom*	Primary Day Opening Lecture *Mike Askew and Lynne McClure*	Session 4	Session 6
	Session 2	PD Session 1	Presidential Address *Robert Barbour*	Closing Lecture *John Barrow*
Lunch	Lunch	Lunch		*End of Conference*
Opening Lecture *Chris Budd*	Session 3	PD Session 2	Visit	*Branches meeting*
Session 1	History Day Closing Lecture *Peter Neumann*	Primary Day Closing Lecture *Cherri Moseley*	Session 5	
Dinner	Dinner	Dinner / Annual Dinner		
Mapping the Future I	Mapping the Future II	Meet the Teaching Committee Subgroups		
AGM	Open Teaching Committee Meeting	President's Reception Annual Dinner		
Quiz				

Please note an up-to-date programme is maintained on the website
P = Primary : S = Secondary : P16 = Post-16 : G = General

Day 1 14 April General Programme

12.00 - 2.00pm Registration

2.00 - 3.15pm The Opening Lecture

Professor Chris Budd, Professor of Applied Mathematics at the University of Bath and the Royal Institution, believes that it is essential that mathematics is presented in an exciting and stimulating way. Come and find out how.

3.30 - 4.30pm Session 1

Tony Gardiner	**National Mathematics Teachers Summer School: 2 years on.** The NMTSS is unique: there is no other residential opportunity in the UK for teachers to immerse themselves in mathematics for 6 days. In this session we examine why it matters, what it covers, who goes, how they respond, what benefits accrue 12 months down the line, and the challenges it has to face in order to survive.	**S** **P16**
Amy Svoboda	**Codetastic maths** An introduction to using the history and mathematics of code breaking in the classroom. From Ceasar shifts to RSA I will talk about how code breaking can add excitement to the curriculum, provide cross curricular links and be a fantastic way of embedding mathematics in the real world. Suitable for KS2 to KS5 but is probably most relevant to end of KS3 to KS4.	**P** **S** **P16**

Jennifer Piggott Project Director NRICH	**Embedding Rich Tasks into the Curriculum** We have been working with a number of schools trialing how problems on the NRICH website (http://nrich.maths.org) can be integrated into the curriculum. Find out how this is being done and see how our mapping documents can help your school. Of course, we will do some problem solving along the way.	**S**
Donald Keedwell	**Some Gems of Geometry** We draw attention (in a historical context) to some of the beautiful results of (mainly) Euclidean geometry assuming no prior knowledge and not excluding ones presently in school syllabi. We may include a few from projective geometry if time permits..	**G**
Sue Pope	**Engaging Mathematics For All** QCA has been working with schools to explore ways of making the opportunities in the new secondary curriculum for mathematics a reality for all learners. This includes making what is traditionally considered 'enrichment and enhancement' available to a wide range of learners and exploiting the potential for mathematical activity In this workshop there will be an opportunity to find out what schools have been doing and to preview the case studies and guidance that QCA will produce as a result	**S**
Geoff Tennant and Dave Harries	**Gifted and talented in maths from Key Stage 2 to 3** Based on a small-scale research project in Berkshire and Hampshire, Dave and Geoff will examine provision for 'gifted and talented' children in mathematics, particularly concentrating on the transition from Key Stage 2 to 3. A range of activities will be presented, along with a number of pointers as to how enthusiasm for the subject can be cultivated, maintained and enhanced as children move from primary to secondary school.	**P** **S**
Pat Perks and Stephanie Prestage	**Exploring the isosceles triangle; the key to geometry** By exploring the isosceles triangle in a circle, in a rectangle, its symmetry and properties we work towards all of the geometry curriculum offering ways of introducing circle theorems, locus, angle practice …. Come prepared to draw, fold, cut out, hypothesise, adapt and extend.	**S**
Peter Hall	**Primary Mathematics** A workshop session to discuss and explore strategies for teaching children about fractions. The workshop will include the use of tools and resources from the NCETM portal including the Self-evaluation tools and the primary online course 'Making Connections in Mathematics'	**P**
Nick Lord	**Newton's book on algebra** 2007 saw the 300th anniversary of the publication of Newton's *Universal Arithmetic*, compiled from notes of his lectures on algebra given at Cambridge. Although Newton only reluctantly gave permission for its publication, we shall see that it provides a fascinating glimpse of the state of algebra then and of Newton's own contributions to this field.	**P16** **G**

5.15 - 6.30pm Mapping the Future I

Representatives of QCA, HMI, National Strategies and Teaching Committee: a structured discussion.

7.30pm A G M 8.30pm Q U I Z

Day 2 15 April History Day

9.00 - 9.30am Registration for History day delegates

9.30 - 10.30am History Day Opening Lecture

Peter Ransom is a mathematics teacher with a passion for exciting lessons and for the history of mathematics. Peter is also leading two workshop sessions.

11.00 - 12.00pm Session 2

Nadia Baker	**The Secret World of Codes and Codebreaking** An interactive presentation on the maths and history of codes and codebreaking - including a demonstration of a genuine WWII Enigma Cipher Machine. Delegates will also be invited to crack a variety of codes progressively revealing clues that ultimately identifies an 'Enigmatic Character'.	**S** **P16** **G**
Jenny Gage	**The Maths of Churches, Mosques, Synagogues and Temples** Places of worship can provide students with a rich source of mathematical activity. In this practical workshop, we will look at history, architecture, geometric construction, symmetry and pattern. We will also explore the role of symbols in the development of maths and places of worship.	**P** **S** **G**
Chris Sangwin	**How to draw a straight line: from James Watt to Bruno Buchberger.** James Watt pioneered the development of steam power which was crucial to the industrial revolution. His "parallel motion", a *linkage mechanism,* was one important technical advance, allowing the force of the engine to act in both push and pull directions. This talk will examine the mathematics of linkages, both from historical and modern perspectives.	**G**
John Silvester	**Fermat, Lemoine and Kiepert** Given a triangle T, Fermat's minimum-distance problem involves erecting equilateral triangles outwards on the sides of T. Given only the outer vertices of these three triangles, Lemoine's problem is to reconstruct T. This was solved by Kiepert, who Gised the problem by introducing a rectangular hyperbola with some remarkable properties.	**G** **P16**

Garrod Musto	**Euclid's Elements: Compass Constructions and (Crop)Circle Theorems** The session seeks to explore the Books of Euclid's Elements that focus on aspects of the geometry of circles, and how the phenomenon of crop circles can be used in the classroom (or a farmer's fields!) to explicitly explore the compass constructions and circle theorems found within the GCSE syllabus.	**S** **P16** **G**
Linda Sturman and Graham Ruddock	**Messages from TIMSS past and present** In December 2008, TIMSS 2007 results are published. TIMSS is a four-yearly international maths and science survey of 9-10 and 13-14 year olds, exploring background variables and achievement. This session outlines maths results from 2007 compared with previous TIMSS cycles, and considers implications for maths teaching and learning in the UK.	**P** **S**
Arthur Gibson	**The Wittgenstein Papers** Professor Arthur Gibson explains how a previously unexplored archive from the MA library is leading to new insights into a crucial period in the development of Wittgenstein's philosophy and his approach to Mathematics.	**G**
Peter Ransom	**Yo Ho Ho ratio: some mathematics of Trafalgar** Able Seaman Ransom of HMS Pickle in 1805 seaman's dress looks at the risks Nelson took. You work with the mathematics of cannon balls and observe their destructive power. Make an old navigational instrument (parallel rulers) and test it. Get a CD ROM of many materials and taste ships biscuits.	**S** **G**

1.30 - 2.30 pm Session 3

Rachael Read	**Vedic Maths** Vedic Mathematics is a method of fast calculations developed on the basis of ancient Indian principles. The ideas presented in this session could be used as teasers to interest pupils in numbers or as a basis for some algebraic proofs.	**S**
David Acheson	**The Not So Simple Pendulum** What did Galileo do with pendulums exactly? Why is the basic equation for a simple pendulum derived wrongly in virtually every textbook? And why are some pendulums chaotic? Using experiments and computer simulations, I will trace the history of the pendulum in mathematics, from 1609 to present day.	**G**
Michael Fox	**Two classic problems** We cannot trisect an angle or draw a regular heptagon with straight-edge and compasses, yet over the last 2300 years many exact (and approximate) constructions have been found. We look at some of them, see if they are related, and whether they can be re-created with geometry software.	**P16** **G**
Barry Lewis	**Wolstenholme's Problems** The Cambridge mathematics tripos was memorably described by Forsyth (who later was a prime reformer) as like teaching students a language through crossword puzzles. But in the work of Wolstenholme he recognized an enormous contribution to mathematics disguised as a primer: *"... a collection of some three thousand problems naturally varies widely in value, but many of them contain important results, which in other places or at other times would not infrequently have been embodied in original papers. As they stand, they form a curious and almost unique monument of ability and industry, active within a restricted range of investigation."* This talk will look at some of his problems – their solution and the mathematics that they exemplify.	**P16**
Jenny Ramsden	**Using the History of Mathematics in off-curriculum classes** Using snippets from history and introducing pupils to the story behind the Mathematics they are doing can be rewarding and fulfilling. Whether for Clubs or after-school workshops, in the classroom or outside, come and learn about some of the mathematicians who made our subject come alive.	**P** **S** **P16** **G**
Janet Jagger	**Ptolemy's table of chords and the beginnings of trigonometry** Calculating the lengths of chords of a circle (without the use of trigonometry) brings in some interesting geometry. This led to the beginnings of trigonometry - please bring your own calculators. The last part of the talk will indicate how these beginnings became the trigonometry that we know today.	**S G**
Bob Burn	**Early logarithms: Napier, Briggs and the hyperbola (1614 – 1650)** Trigonometry was the motivation for Napier and his methods of simplifying calculations. He was an original thinker with a practical touch. Briggs' improved Napier's start and resulted in more precise methods. This led to a hyperbola in Gregory of St Vincent and de Sarasa.	**S** **P16**
Peter Ransom	**Fortifying France: les villes de Vauban** Presented by Vauban, a 17th century French Marshal. We work with the geometry of fortification, using an old French mathematics book. A workshop session of opportunities for creative work in small groups. You make and use a pair of proportional dividers and get a CD ROM of all the materials.	**S** **G**
Kimie Markarian	**Using the Soroban** The Chinese abacus was used in Japan from the 16th century until Arabic numerals arrived. Much later than in Europe, it was transformed gradually into the Soroban, the modern Japanese abacus. The use of the Soroban gives a clear understanding of number system, base ten, caters to kinaesthetic, visual, and auditory activities.	**P**

3.00 - 4.30pm History Day Closing Lecture The Memoirs of Évariste Galois

Dr Peter Neumann is no stranger to MA conferences. In this lecture he will talk about the contributions that Évariste Galois made to algebra before his untimely death at the age of twenty as a result of a mysterious duel in 1832. In effect Galois changed the course of the subject from classical theory of equations to what was to become 'Abstract' or 'Modern' Algebra. Dr Neumann is currently working in Paris, studying the Galois manuscripts, and hopes that he may be able to bring fresh insights about Galois' work and influence to the conference.

4.45 - 6.00pm **Mapping the Future II**
Dr Tony Gardiner will lead a structured discussion reflecting on recent aspects of TIMSS.

8.00 - 9.30pm **Open Meeting of Teaching Committee**

Day 3 16 April Primary Day and General Programme

Conference delegates may choose from two strands – one devoted to Primary mathematics, the other covering General areas of mathematics. The primary programme will be available on the website or contact the conference office 0116 221 0016 to request a paper programme to be sent when it is ready.

	Primary Day	General Programme
9.30 – 10.30am	**Opening Primary Lecture** *Professor Mike Askew & Lynne McClure*	**Session 4**
11.00 – 12.00pm	**Primary Session 1**	**Presidential Address** *Robert Barbour*
1.30 – 2.30pm	**Primary Session 2**	**Visit** *Centre for Mathematical Sciences* *Isaac Newton Institute*
3.00 – 4.00pm	**Closing Primary Lecture** *Cherri Moseley*	**Session 5**

9.00 - 9.30 am Registration for Primary Day Delegates

9.30 - 10.30 am Session 4 General Programme

Rachael Read	**More Engaging Ideas** During the session we will try out a wealth of resources/teaching methods developed to encourage pupils to engage and enjoy their maths lessons. The emphasis will be on problem solving, creativity and collaboration. Attendees who leave a named memory stick are welcome to copies of all the resources.	**S**
Doug French	**A Century of School Trigonometry** Elementary trigonometry only found a place in the school curriculum about a hundred years ago. This session will look at some of the origins of the methods that are commonly taught for solving right angled triangles and will draw on a variety of school text books and other sources to consider alternative ways of presenting the key ideas.	**S** **P16** **G**
Stephen Hewson	**Embedding Rich Tasks into the Curriculum** We have been working with a number of schools trialing how problems on the NRICH website (http://nrich.maths.org) can be integrated into the curriculum. Find out how this is being done and see how our mapping documents can help your school. Of course, we will do some problem solving along the way.	**P16**
Sue de Pomerai	**On-line, Live and Interactive Professional Development in Mathematics** The Remote Professional development (RPD) programme is a ground-breaking approach to professional development, offering a range of courses to enable teachers to teach A level Mathematics/Further Mathematics with confidence. The courses make use of a well established web-based package called Elluminate. Elluminate allows a tutor and delegates to communicate live on-line using audio, handwriting on a shared virtual whiteboard, application sharing and instant messaging via the internet. The session will feature a demonstration of Elluminate, results from the pilot programme and NCETM research and a discussion of the possible future of this type of teacher support.	**S** **P16** **G**
Liz Russell	**Murder mystery and other problem solving activities** Come and take part in a murder mystery that I have used with pupils from year 6 as a transition project and years 7 -10 during activities week. Also other projects which require collaboration, reasoning and resilience which are all skills flagged up in the new Key Stage 3 strategy.	**S** **P16**
John Rigby	**Regular enneagons and other odd polygons: geometric proofs of trigonometric sums and products.** This topic, and my thoughts on it, were inspired by an article by David Miles and Chris Pritchard in the November 2008 issue of Mathematics in School. My investigation is ongoing and has not always proceeded in the intended direction. It has even touched briefly on Adventitious Quadrangles – a subject popular in the Gazette in the 1970s but dating back to 1922.	**G** **P16**
Alan Catley	**Autograph . . . it does a *lot* more than 'draw graphs'** From KS3 to Further Maths and covering all areas of the curriculum; algebra, geometry, linear and quadratic functions, calculus, data handling and statistics, vectors, discrete mathematics etc. Autograph really does bring Mathematics to life. This session will give an insight into the incredible flexibility of this software	**S** **P16**
Jenny Orton	**New for Old - a new look at some old problems with TI-Nspire** A hands-on session using TI-Nspire handhelds to see how multiple representations can be used to shed light on mathematical problems from different periods and cultures.	**S,** **P16**
Catherine Ogden	**Active Learning in Action** In this session I will demonstrate some ways in which I have implemented Active Learning ideas (from the Standards Unit box), and how I have incorporated AfL ideas into my everyday teaching. The emphasis is on A-Level and higher ability GCSE topics. All the resources you see will have been tried	**S,** **P16**

	and tested in the classroom – feel free to borrow!

11.00 - 12.00 noon Presidential Address

3.00 - 4.00 pm Session 5 General Programme

Gerry Leversha	**Why it is important to teach Geometry** I begin with the radical proposal that, at least for those pupils who are taking Higher level GCSE, there is significant mathematical value in studying geometry at a more formal level than is currently offered in most school classrooms. In particular, three aspects of the subject are emphasised:- ✍ an emphasis on the deductive framework and the role of proof ; ✍ the importance of precision in definitions and concepts; ✍the concept of Gity. With careful preparation of material, and an accent on surprising and illuminating results, this can be a stimulating and active challenge for teachers and students.	**S**
David Crawford	**It's a Kind of Magic** In this session I will demonstrate some mathematical tricks that could be used to enliven teaching. The tricks will fall into two categories – number tricks and card tricks – neither of which will require any particular skills (beyond basic arithmetic) to perform. Bring pencil and paper (and a calculator to speed things up) and prepare to join in.	**G**
Mundher Adhami	**Ratio Rationing – floor and ceiling issues** Ratio and proportion looked at from the 'thinking through maths' activity perspective. Or is it 'thinking in maths' or 'thinking out maths'? What are the real prerequisites for handling Ratio? How far can youngsters or adults go in understanding proportionality? How important really are these concepts?	**G**
Paul Brown	**Useful Paradoxes** Counter intuitive situations are guaranteed to arouse the interest of mathematics students. This session will demonstrate the teaching use of at least six paradoxical situations, some of which have a long history.	**S**
Sidney Tyrrell	**More Maths Grads – the future** More Maths Grads is a HEFCE pilot project aiming to increase the numbers studying for degrees in the mathematical sciences. We take activities into schools, support teachers and more… come and try some activities, pick up resources, meet the team, and perhaps we can help you, and you us.	**S** **P16**
Tony Barnard	**Entertaining Mathematical Curiosities** Selection of short items which people who like maths tend to find intriguing. This will include puzzles, paradoxes, magic, miscellaneous facts - with mathematical explanations at a variety of levels.	**G**
Doug French	**Polyhedral Dissections** This session will look at some simple properties of the five regular polyhedra – the tetrahedron, cube, octahedron, dodecahedron and icosahedron. Various dissections will be demonstrated and used to see how the volume of each polyhedron can be found using ideas that should be familiar to higher tier GCSE students.	**S** **P16** **G**
Sally Barton	**Making Work Experiences Count** You have the resources to relate mathematics to the workplace: your students! Gatsby funded me to develop resources woven around ordinary work experiences. From before they go, to when they come back, your students will have experiences that you can use to develop and improve their functional skills.	**S**
Ray Gibbons	***Equals*: Including the "non-A-to-Cs"** How do we include the "non-A-to-Cs" Investigating appropriate activities (many of them from *Equals*) and pedagogies for those who will not achieve the highest results, including those who are officially recognised as having special educational needs.	**S**
Sue Forrest and Steve Edwards	**Assessment for Learning Workshop** Experimenting together with tasks and tools to promote Assessment for Learning, including the use of mini-whiteboards, matching cards and students' posters.	**S**
Steve Abbott	**How to improve your own and colleagues' subject expertise** Media coverage of Ofsted's major report *Mathematics: understanding the score* (Sept 2008) focused mainly on its more negative findings. Its value as a professional development resource was hardly mentioned. This session will illustrate how the report's *Prime practice* and *Weaker factors* case studies can be used to improve subject expertise.	**P** **S**

9.30 – 10.30am - Opening Primary Lecture - *Professor Mike Askew & Lynne McClure*

11.00 – 12.00pm - Session 1 Primary Programme

Maulfrey Worthington and Elizabeth Caruthers	***Children's Mathematical Graphics: understanding the key concept, (Williams Maths Review, 2008)*** This workshop will help you understand the difference between 'recording' in mathematics and *children's mathematical graphics* (supporting deep mathematical thinking). We will explore some difficulties teachers and children experience in written mathematics, relating these to recent Ofsted reports; assessment in the EYFS; the Primary Strategy and the Williams Maths Review.	**P**
Mary Wood and Josephine Burgess	***Using photographs to inspire mathematics teaching*** A practical session to show problem solving as creative, fun and challenging!	**P**

Jill Mansergh	**Little Bears, Problem Solving and Sorting** Using "Little Bears" as a resource for problem solving and logic puzzles in the foundation stage and KS1.	**P**
Jenni Back	***Developing mathematics teachers for the future*** This workshop will draw on the data from the RECME project (Researching Effective CPD in Mathematics Education) which investigated the interrelated factors contributing effective CPD. We would like to explore some of our findings in relation to the experience of the participants and consider with them what is so special about CPD for mathematics that seems to be different from other school subjects	**ALL**
Sue Pope and Nick Doran	***QCA Primary curriculum and assessment update*** This session will be an opportunity to discuss what is happening with regards to curriculum and assessment development. This will include the Primary curriculum review, APP, the early years foundation stage profile and national curriculum tests.	**P**

Lunch

1.30 – 2.30pm - Session 2 Primary Programme

Ruth Merttens	***Creative Teaching in the Early Years Classroom*** One of Britain's most influential and creative practitioners of early years mathematics shares her insights on teaching, discovery, free play and much more in the EYFS and looks at the transition to Y3.	**P**
Liz Meenan	***Be a paper magician!*** Paper folding is more than a creative hobby…it holds a key to a world of practical geometry…and all without glue!	**P**
Nick Dowrick	***Every Child Counts, Numbers Count*** An overview of the Numbers Counts intervention programme and discussion of the early findings; what are the implications for teachers and schools…	**P**
Andrew Jeffrey	***Mathemagics*** Clear positive and motivated messages about maths interwoven with magic	**P**

3.00 – 4.00pm - Closing Primary Lecture - *Cherri Moseley*

4.45- 6.00pm Meet the Teaching Committee Subgroups

7.00 pm President's Reception
7.30 pm Annual Dinner

Day 4 17 April General Programme

9.30 - 10.30am Session 6

Liz Woodham	**Rich Tasks** We have been working with a number of schools trialing how problems on the NRICH website (http://nrich.maths.org) can be integrated into the curriculum. Find out how this is being done and see how our mapping documents can help your school. Of course, we will do some problem solving along the way.	**P**
Pat Perks	**Using the calculator** A hands-on exploration of how the use of calculator can help to develop number skills from digit recognition to the beginnings of the use of operations.	**P**
Sue Pope and Nick Doran QCA	**QCA secondary curriculum and qualifications update** This session will be an opportunity to discuss what is happening with regards to curriculum, assessment and qualifications development. This will include developments in APP, National Curriculum testing, the diplomas, functional skills and GCE and GCSE mathematics.	**S** **P16**
Adam McBride	**Squares** A look at some interesting squares, along with sums of squares and related matters. Some squares might even be magic. Old squares (and everyone else) welcome !	**G**
Rod Bond	**Can teachers motivate and enthuse able mathematicians at KS4 ?** This session will report and discuss the initial findings of a research programme funded by the NCETM looking at CPD for teachers with respect to how they can motivate and enthuse able mathematicians by developing the pedagogy through different approaches to working with AGT students at KS4.	**S**
Jennie Golding	**It's the thought that counts** Participants will experience a range of generic starting points and frameworks for engaging students in mathematical thinking, and will have the opportunity to consider adaptations across the 11-18 curriculum. Come prepared to take part, share ideas, and have some fun! All resources and developments can be emailed to participants.	**S** **P16**
Mark McCourt	**Personalising Professional Development**	**S**

NCETM	The NCETM has developed a series of mathematics department workshops which provide an opportunity for structured professional development, allowing personalised mathematics specific PD to be delivered throughout the year. This hands-on workshop will give you the opportunity to try out aspects of the modules and discuss how they might be used in your school.	
Anthony Robin	**Connections between some statistical distributions** If you know the distribution of children in a family, what is the number of siblings a person has? If you know the age distribution of people "on the street", what is the distribution of the age at which they die? And some other related problems.	**P16 G**
Ray Gibbons	**SMILE: how to make the mathematics fit the child** Studying some SMILE activities (which should soon be Gly available once more) and considering the pedagogy best fitted to their use.	**S P16**
Chris Pritchard	**A Square Peg in a round hole** This part-talk, part-workshop, will investigate the area of the circle, square and regular polygons, and their inter-relationships in terms accessible to pupils from Year 10 upwards. From a simple idea, expect Pythagoras, trigonometry and constructions to emerge, together with the manipulation of surds, calculator work and much more.	**S P16 G**

11.00 - 12.30 pm The Closing Lecture

Professor John Barrow FRS Professor of Mathematical Sciences at Cambridge University, Director of the Millennium Mathematics Project and Gresham Professor of Geometry needs no introduction. He is the author of many outstanding books dealing with important scientific and mathematical ideas – they include *Pi in the Sky: Counting, Thinking, and Being* and *The Infinite Book: A Short Guide to the Boundless, Timeless and Endless.* He also received the 2008 Royal Society Faraday Prize. He writes about profound topics in an engaging, exciting and effective way bringing understanding and fresh insights to his subject matter. He has lectured extensively and entertains and extends his audience by looking afresh at traditional topics – something he will do to bring the conference to a rousing close.

The Mathematical Association reserve the right to make alterations if needed.
Please check the website www.m-a.org.uk for updates.

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