International Study Group on the Relations Between
the HISTORY and PEDAGOGY of MATHEMATICS
An Affiliate of the International Commission on
Mathematical Instruction

No. 92   **July 2016**

This and earlier issues of the Newsletter can be downloaded from our website
http://www.clab.edc.uoc.gr/hpm/
These and other news of the HPM group are also available on the website
http://grouphpm.wordpress.com/
(the online and on time version of this newsletter).

A MESSAGE FROM THE CHAIR OF HPM

Dear colleagues and friends of HPM,

The past few months have been a busy time for HPM and its diverse committees. We have been getting ready for our ninth quadrennial satellite meeting, HPM 2016, which will take place in Montpellier from July 18 to July 22, 2016. The HPM scientific committee has worked very hard to prepare the scientific program, while the local committee has done tremendous work to prepare the participants' venue.

1. HPM 2016 Program

The HPM 2016 program will soon be available on the conference website (**http://hpm2016.sciencesconf.org**). In the meantime, to give you an idea, let me mention that at the end of the day on Monday 18 July (after a plenary session, some oral and poster presentations and

workshops) Christian Gerini will present a Public Conference on Joseph-Diez Gergonne. The conference will be followed by a reception at the Montpellier Town Hall. Tuesday, Panel 1 will take place after a plenary conference. At the end of the day, the schedule features a *Thematic Presentation*, in which K. Clark, T. H. Kjeldsen, S. Schorcht, C. Tzanakis, and X. Wang will present a study about recent developments in the History of Mathematics in Mathematics Education. Their presentation includes a discussion with the audience about new trends in HPM research lines.

There are three Discussion Groups in the schedule: two will take place Tuesday and one Discussion Group will take place Thursday. As you may recall, the Discussion Groups are a novelty in the HPM satellite meetings. The idea is to open a space for discussion and exchange among the participants. Such a discussion space is also meant to be a space for

connection between the new generation of HPM researchers and those who participate regularly in HPM activities.

Wednesday's schedule features two plenary sessions in the morning. The afternoon is reserved for excursion time and participants have different choices for exploring Montpellier and its history. The day will finish with a gala dinner at the seaside.

Gavin Hitchcock's Dramatic Presentation celebrating Joseph Gergonne will take place on Thursday. Panel 2 will take place on Friday.

Gavin's Dramatic Presentation deals with some entities that claim to be numbers and to do so, they resort to a geometric alibi. The Dramatic Presentation includes historical celebrities such as Jean-Robert Argand, Joseph Gergonne, François J. Servois, and Adrien-Marie Legendre. Needless to say, we are in the process of recruiting actors for the Dramatic Presentation from among the HPM 2016 participants.

2. Proceedings of HPM 2016

The Proceedings of the HPM 2016 Meeting will be available before the conference. The papers are in the final stage of the editing process.

3. HPM Presentation at ICME-13

HPM has two Topic Study Groups at ICME-13: TSG 24: History of the teaching and learning of mathematics (Co-chairs: Fulvia Furinghetti and Alexander Karp), and TSG 25: The Role of History of Mathematics in Mathematics Education (Co-chairs: Costas Tzanakis and Xiaoqin Wang).

As usual, like all other ICMI Affiliate Groups, HPM will have a presentation at ICME-13. This presentation will take place on Saturday 30 July 2016, 16:30-18:00. You are cordially invited to join TSG24 and TSG25 and our Affiliate Group Presentation.

4. HPM Digital Library

One of the projects that I had planned to carry out during my term as the chair of HPM was the creation of the HPM Digital Library. As you may recall, the Library is hosted on an ICMI server:

http://www.mathunion.org/icmi/digital-library/aos-conferences/

I am glad to report that two new proceedings have been sent to ICMI. They will be added shortly. The proceedings are:

History and epistemology in mathematics education. Proceedings of the 5th European Summer University (Evelyne Barbin, Naďa Stehlíková, Constantinos Tzanakis, eds.), 2008.

History and epistemology in mathematics education. Proceedings of the 7th European Summer University (Evelyne Barbin, Uffe Thomas Jankvist, Tinne Hoff Kjeldsen, eds.), 2015.

I thank the proceeding editors for agreeing to add the proceedings to our Digital Library.

We are finalizing the digital edition of the HPM 2000 Proceedings. These proceedings, as well as the HPM 2016 Proceedings, will also be added to the HPM Digital Library.

5. New HPM Chair

HPM Chairs are elected for a period of four years. My term as the HPM Chair ends in July 2016. The Chair and the HPM Executive Committee (made up of the three previous HPM Chairs: Evelyne Barbin [HPM Chair 2008-2012], Constantinos Tzanakis [HPM Chair 2004-2008], and Fulvia Furinghetti [HPM Chair 2000-2004]) organized the election of the new Chair. The voting members were the members of the HPM Advisory Board. **It is my great pleasure to announce that Kathy Clark has been elected the HPM Chair for 2016-2020.**

Kathy is an Associate Professor at the School of Teacher Education, Florida State University, and has been involved in many HPM activities. For instance, she was a team member of the Topic Study Group 25 (TSG 25) of the 12th International Congress on Mathematical Education (ICME-12). She was also a co-organizer of the Discussion Group 5 (DG5) of the 12th International Congress on Mathematical Education (ICME-12) and is one of the Discussion Group Coordinators of "History of Mathematics in Teachers' Education" of HPM 2016. She is a current member of the HPM Advisory Board and a HPM Newsletter Co-Editor. Kathy was Secretary of the HPM - Americas Section (HPM – Americas; 2011–2013). I congratulate Kathy on having been elected as our new Chair and wish her well. Undoubtedly, our group is in very good hands.

Luis Radford
HPM Chair
Université Laurentienne, Canada
U. Federal do Rio Grande do Norte, Brazil

ICME 13 TSG 25
History of Mathematics in Mathematics Education: Recent developments

24-31 July 2016
Hamburg, Germany

One of the *Topic Study Groups* (TSG) at the forthcoming ICME 13 is TSG 25: *The Role of History of Mathematics in Mathematics Education*.

Its Organizing Team (OT) has performed a survey on the developments in the HPM domain since 2000, the year of publication of *History in Mathematics Education*: *The ICMI Study*, edited by J. Fauvel & J. van Maanen (Kluwer 2000). This volume has been a highly collective work and a landmark in the area. Since its publication, the HPM domain has expanded considerably and intensive research activity has been realized worldwide that led to a great deal of thoughtful publications both on theoretical issues and empirical investigations.

Nevertheless, a comprehensive survey is still lacking. Therefore, the survey carried out by the OT of TSG 25 aims to contribute to filling the gap, at the same time providing a useful tool to anyone with interest in this domain and wants to become informed on the main issues and to have a concise guide of the work done in this area.

With focus on the period after the publication of the above *ICMI Study Volume*, this survey attempts to provide concise annotated reference to existing work in this area, related to the TSG 25 main themes.

The structure of the survey runs roughly as follows:

Section 1 explains its rationale and formulates the key issues explicitly addressed in and/or implicitly underlying the work done in this area:

- *Which history is suitable, pertinent, and relevant to Mathematics Education?*
- *Which role can History of Mathematics play in Mathematics Education?*
- *To what extent has History of Mathematics been integrated in Mathematics Education (curricula, textbooks, educational aids/resource material, teacher education)?*
- *How can this role be evaluated and assessed and to what extent does it contribute to the teaching and learning of mathematics?*

Section 2 gives a brief historical account of the development of the *HPM domain* with focus on the main activities in its context and their outcomes since 2000, a short presentation of journals and newsletters, and an outline with comments on the key issues mentioned above and references to the literature for details.

Section 3 constitutes the major part of the survey. It provides a sufficiently comprehensive bibliographical survey of the work done since 2000:

- Briefly annotated collective works (collective volumes, special issues of Mathematics Educational journals devoted to the HPM perspective, conference proceedings, resource material);
- Individual works on one or more of the above mentioned six main themes of

TSG 25 in the form of books & doctoral dissertations, papers in scientific journals, and individual chapters in collective volumes or conference proceedings.

For each reference there is explicit indication of the TSG 25 main themes to which it is mostly related. In addition, though the emphasis is on research results of an as broad as possible international interest, due attention is paid to nationally-oriented implementation of the *HPM perspective* as well. Even though several voluminous collective works exclusively devoted to the *HPM perspective* (e.g. some collective volumes or conference proceedings) contain several important contributions, the latter are not included in the bibliographical survey as separate items in order to keep this survey to a reasonable size. Instead, all collective works are annotated briefly.

Section 4 summarizes the main points of the survey, whereas, Section 5 contains all references given in section 2.

The survey can be accessed via the HPM website at http://www.clab.edc.uoc.gr/HPM/HPMinME-TopicalStudy-18-2-16-NewsletterVersion.pdf

We emphasize, however, that this survey should be considered only as a **working document** to be kept updated both by the OT of TSG 25 and/or other members of the community, who will point out further references that are missing. Any comments, suggestions, amendments and further bibliographical references are most desirable and welcome!

The HPM domain is at a particularly interesting juncture right now, 15 years after the publication of the comprehensive ICMI study - with much and varied work taking place all over the globe. Therefore, this survey may be both a continuously updated useful tool and a key component for heralding a potentially new and interesting era of work to be done.

The Organizing Team of TSG 25 of ICME 13

Kathleen Clark
Tinne Hoff Kjeldsen
Sebastian Schorcht
Constantinos Tzanakis
Xiaoqin Wang

CERME 10: Thematic Working Group 12 History in Mathematics Education

Call for papers and poster proposals

Leader of the Working Group
Renaud Chorlay (France)
renaud.chorlay@espe-paris.fr

Co-leaders of the Working Group
Kathy Clark (USA), Katalin Gosztonyi (Hungary), Snezana Lawrence (UK)

Scope and focus of the Working Group
History of mathematics in mathematics education continues to receive much attention. However, empirical research and coherent theoretical/conceptual

frameworks within this area have emerged relatively recently.

The purpose of this CERME TWG is to provide a forum to approach mathematics education in connection with history and epistemology dedicated primarily to theory and research on all aspects of the role, effect, and efficacy of history and epistemology as elements in mathematics education.

Call for papers and poster proposals

TWG12 welcomes both empirical and theoretical research papers, and poster proposals related to one or more of the following issues – although any paper or poster of relevance to the overall focus of the group will be taken into consideration:

1. Design and/or assessment of teaching/learning materials using the history of mathematics, preferably with conclusions based on empirical data; all levels can be considered, from early-age mathematics to tertiary education and teacher training.

2. Surveys on the existing uses of history or epistemology in curricula, textbooks, and/or classrooms in primary, secondary, and tertiary levels;

3. History of mathematics education;

4. Relationships between, on the one hand frameworks for and empirical studies on history in mathematics education and, on the other hand, theories, frameworks and studies in other parts of mathematics education research.

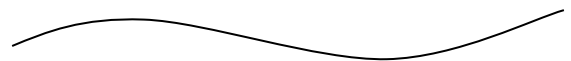Papers and poster proposals should use the CERME template, and conform to the guidelines for authors as outlined on the CERME 10 website. CERME10 uses a submission website. An author submits a paper on the website (uploading it as a .doc or .docx file, and providing the required information, in particular the TWG number).

Reviews and decisions

Each paper will be peer-reviewed by two persons from among those who submit papers to this TWG. Please expect to be asked to review up to two papers yourself. The group leaders will decide about the acceptance of posters.

Important dates

– **15th September 2016:** Initial submission by authors on the online submission system.
– **2nd November 2016:** Preliminary decisions on papers sent.
– **10th November 2016:** Preliminary decisions on posters sent.
– **24th November 2016:** The authors send a revised version if needed.
– **5th December 2016**: Final decisions sent.
– **12th December 2016:** Final version uploaded on the online submission system.
– **13th January 2017:** Papers available on CERME 10 website.

Have you read these?

Data-Mining Algorithm Reveals the Stormy Evolution of Mathematics over 700 Years
https://www.technologyreview.com/s/601179/data-mining-algorithm-reveals-the-stormy-evolution-of-mathematics-over-700-years/

The classical origin of modern mathematics

Floriana Gargiulo, Auguste Caen, Renaud Lambiotte, Timoteo Carletti
(Submitted on 21 March 2016)

Abstract:
The aim of this paper is to study the historical evolution of mathematical thinking and its spatial spreading. To do so, we have collected and integrated data from different online academic datasets. In its final stage, the database includes a large number (N ~ 200K) of advisor-student relationships, with affiliations and keywords on their research topic, over several centuries, from the 14th century until today. We focus on two different topics, the evolving importance of countries and of the research disciplines over time. Moreover we study the database at three levels, its global statistics, the mesoscale networks connecting countries and disciplines, and the genealogical level.
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Dear researchers,

It is a pleasure to inform you all about the launch of the 30th edition of the *Revista Brasileira de História da Matemática* that can be acessed and read at the address:

  http://www.rbhm.org.br/vo15-no30.html

Sergio Roberto Nobre
Editor da Revista Brasileira de História da Matemática
Brazil

Artigos – Articles

Dissimilar Ways Of Inscribing Similar Triangles
Ivor Grattan-Guinness†

On Euclid's Five Postulates
Gregor Schneider

Euler e as Pontes de Königsberg
Frederico José Andries Lopes
& Plínio Zornoff Táboas†

La noción de cónica en Apolonio y Descartes: Un análisis comparativo
Alberto Forero Poveda
& Jhon Helver Bello Chávez

Intercâmbios Acadêmicos Matemáticos entre EUA e Brasil por meio de Bolsas de Estudos
Lucieli M. Trivizoli

Carathéodory and the axiomatization and algebraization of measure theory in the first half of the XX Century
Carmen Martínez-Adame

The Linear Indeterminate Equation – A Brief Historical Account

Kedar N Shukla

Primeiro Cartello di Matematica Disfida de Ludovico Ferrari a Nicolò Tartaglia

Fábio Maia Bertato

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Dear Colleagues,

Menon Journal of Educational Research has published a Thematic Issue on *The Use of History of Mathematics in Mathematics Education*.

This Thematic Issue includes 8 papers, 6 in English and 2 in French, which refer to or are based on empirical studies (4 on elementary and/or junior high school and 4 on pre- and in-service teacher education) and are related to the use of original sources, either directly in the classroom, or as a source of inspiration and rethinking on basic issues in Mathematics Education. The Thematic Issue can be accessed from:

http://www.edu.uowm.gr/site/node/527

Kostas Nikolantonakis
University of Western Macedonia
Greece

Articles

Tsiapou, V., & Nikolantonakis K. (2016). The development of place value concepts and the notion of carried number among sixth grade students via the study of the chinese abacus.

Kourkoulos, M., & Tzanakis C. (2016). Discussing mathematical modeling concerning pascal's wager.

Panaoura, A. (2016). The history of mathematics during an inquiry-based teaching approach.

Barbin, E. (2016). L'instrument mathématique comme invention et connaissance-en-action.

Lawrence, S. (2016). The old teacher euclid: and his science in the art of finding one's mathematical voice.

Anastasiadis, M., & Nikolantonakis K. (2016). Primary sources and history-based problems about isoperimetry: a use of mathematics history in grade six.

Guillemette, D. (2016). Quelques difficultés rencontrées dans la formation des enseignants de mathématiques du secondaire à l'aide de l'histoire des mathématiques: une réflexion sur les modalités de lectures de text historiques.

Witzke, I., Struve H., Clark K., & Stoffels G. (2016). ÜberPro – a seminar constructed to confront the transition problem from school to university mathematics, based on epistemological and historical ideas of mathematics.

Announcements of events

Aim and focus

HPM 2016 is the ninth quadrennial meeting of the International Study Group on the Relations Between the History and Pedagogy of Mathematics—the HPM Group.

These quadrennial meetings are a major activity of HPM to bring together individuals with a keen interest in the relationship between the history of mathematics and mathematics education. They include:

• Researchers in mathematics education who are interested in the history of mathematics and mathematical thinking,

• Mathematics teachers at all levels who are eager to gain insights into how the history of mathematics can be integrated into teaching and how they can help students to learn mathematics,

• Historians of mathematics who wish to talk about their research,

• Mathematicians who want to learn about new possibilities to teach their discipline, and

• All those with an interest in the history of mathematics and pedagogy.

Main theme and topics

The theme of HPM 2016 is "Mathematics in the Mediterranean." The program and activities are structured around the following topics:

1. Theoretical and/or conceptual frameworks for integrating history in mathematics education.
2. History and epistemology in students and teachers mathematics education: Classroom experiments and teaching materials.
3. Original sources in the classroom and their educational effects.
4. Mathematics and its relation to science, technology, and the arts: Historical issues and interdisciplinary teaching and learning.
5. Cultures and mathematics.
6. Topics in the history of mathematics education.
7. Mathematics in Mediterranean countries.

Activities during the 2016 HPM Conference

The HPM Conference is a place where mathematicians, educators, historians, researchers, and students can make presentations and participate in discussions.

The program includes: plenary lectures, panels, discussion groups, workshops, parallel sessions where

participants present research reports, poster exhibitions, and exhibitions of books and other didactical material.

Plenary sessions, discussion groups, and panels deal with the main topics of the conference. Plenary speakers, panelists, and coordinators of discussion groups are invited by the scientific committee.

Research reports are intended to communicate new research results. They take place in parallel sessions of 25-minute oral presentations followed by 5-minute discussions.

Workshops focus on the exchange of ideas and discussion among the participants around some historical or didactical material prepared beforehand by the workshop organizer. The material usually includes original historical texts, didactical material, students' worksheets, etc. Workshops can be one hour or two hours in duration.

Posters present summaries of ongoing or completed research, new ideas, etc.

Provisional planning is available http://hpm2016.sciencesconf.org/conference/hpm2016/pages/Time_Schedule_v4.pdf

Titles of plenary talks:

- Les sources originales dans la salle de classe et leurs effets éducatifs

Renaud Chorlay, ESPE de l'Académie de Paris, France

- Mathématiques dans les pays méditerranéens : La connexion Andalousienne et Maghrébinne

Ahmed Djebbar, Université de Lille, France

- The mathematical cultures of medieval Europe

Victor J. Katz, Professor Emeritus, University of the District of Columbia, Washington, DC, USA

- Formative years: Hans Freudenthal in prewar Amsterdam

Harm Jan Smid, Delft University of Technology, The Netherlands

- Mathematics and physics: An innermost relationship. Some didactical implications for their interdisciplinary teaching and learning

Constantinos Tzanakis, University of Crete, Greece

- L'intégration de l'histoire des mathématiques dans l'enseignement des mathématiques: quelques experiences en Chine

Wang Xiaoqin, Shanghai, China

Time and place

The 2016 HPM Conference will be held from **July 18 to July 22, 2016** in **Montpellier, France**. Montpellier is a beautiful town, very famous for its culture and history.

The University of Montpellier, the host of the 2016 HPM Conference, is one of the oldest universities in the world, where Joseph D. Gergonne published in the early 19th century one of the oldest mathematical journals. Gergonne's portrait appears in the logo and the website banner of the Conference.

Registration fee

- Registration after June 15, 2016, or at the conference: 350 €

The conference fee includes: 5 lunches, 9 coffee breaks, as well as the gala dinner on the seaside and an excursion.

Website
Follow us at:
http://hpm2016.sciencesconf.org

Contact
For further information, please contact:
- Luis Radford (Chair), lradford@laurentian.ca
- Fulvia Furinghetti (Co-chair), furinghetti@dima.unige.it
- Thomas Hausberger (Co-chair), thomas.hausberger@univ-montp2.fr
- Anne Cortella (Co-chair), anne.cortella@univ-montp2.fr

HPM is affiliated with ICMI (International Commission on Mathematical Instruction). HPM 2016 is a satellite meeting of the 2016 International Congress on Mathematical Education and is scheduled close to ICME.

Please note that the 13th International Congress on Mathematical Education (ICME-13) will take place right after HPM 2016, from July 24 to July 31, 2016 in Hamburg, Germany (see http://www.icme13.org/).

ICME-13
International Congress on Mathematical Education

24-31 July 2016
Hamburg, Germany

<http://icme13.org/home>

Topic Study Groups at ICME-13

A Topic Study Group (TSG) is designed to gather a group of congress participants who are interested in a particular topic in mathematics education. A TSG will serve as mini-conference and will display the progress of the discussion in the intervening years since ICME-12. Topic Study Groups will therefore promote the discussion of a variety of perspectives on the theme of the Group. The TSG will consist of high-standard discussions enabling the newcomer to get a broad overview on the state-of-the-art and allowing the experts to lead discussions at a high level. The team will provide the audience of their TSG not with a nationally framed insight into the strands of the discussion of the theme, but will give an overall overview on the international discussion as broadly as possible and allowing for insight into less well-known strands of the discussion from under-represented countries. For ICME-13, the TSG is the major arena for participation. Participants are expected to associate themselves with one TSG and to stay in that group for all sessions.

TSG 24
History of the teaching and learning of mathematics
Co-chairs:
Fulvia Furinghetti (Italy)
furinghetti@dima.unige.it
Alexander Karp (USA)
apk16@columbia.edu
Team members:
Henrike Allmendinger (Germany)
Harm Jan Smid (Netherlands)
Johan Prytz (Sweden)
IPC Liaison person: Alain Kuzniak (France)

TSG 25
The Role of History of Mathematics in Mathematics Education
Co-chairs:
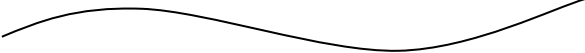Costas Tzanakis (Greece)
tzanakis@edc.uoc.gr
Xiaoqin Wang (China)
xqwang@math.ecnu.edu.cn
Team members:
Kathleen Clark (USA)
Tinne Hoff Kjeldsen (Denmark)
Sebastian Schorcht (Germany)
IPC Liaison person: Alain Kuzniak (France)

History of Mathematics in Education: An Anglo-Danish collaboration

21-24 August 2016
Bath Spa University

The Association of Teachers of Mathematics (ATM) and the [Danish Association for Mathematics Teachers](#) (LMFK) are organising a conference on the use of history of mathematics in teaching. The conference takes place **Monday, 22 August 2016 to Wednesday, 24 August 2016**.
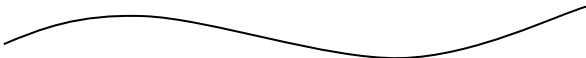
https://www.atm.org.uk/2016-history-of-mathematics-conference

This conference will provide an opportunity for secondary school teachers and mathematics educators in Denmark and the United Kingdom to develop ideas about cases and share best practice in using the history of mathematics. The ambition is to build collaborations and forums for exchange of experiences and materials for mutual benefit. The conference will last three days.

In England, the history of mathematics was part of the statutory curriculum for 11-16 year-olds from 2008 until 2014. The most recent National Curriculum removed reference to history of mathematics. However, there are teachers and mathematics educators who are enthusiastic about the potential of history of mathematics to enrich and humanise the curriculum. There is a working group of the British Society for Research into Learning Mathematics (BSRLM) and the subject associations (the Association of Teachers of Mathematics, ATM, and the Mathematical Association, MA) regularly have sessions at their conferences and articles in their journals.

In Denmark, history of mathematics is a mandatory part of the upper-secondary mathematics curriculum, and future teachers follow courses in the history of mathematics as part of their university education. Nevertheless, practices are varied and good materials sparse, so various efforts are underway to facilitate teachers to better integrate history of mathematics into their teaching. In preparation for the 2016 conference, a series of workshops are planned to aid/assist Danish teachers in preparing and developing cases to present in Bath.

Forthcoming BSHM meetings

(The British Society for the History of Mathematics)

http://www.dcs.warwick.ac.uk/bshm/events.html#forthcoming

1. Mathematical Biography: A MacTutor Celebration

16-17 September 2016
St. Andrews University, Scotland

Full details including programme, venue, registration, call for papers and contact information at www.mcs.st-and.ac.uk/mathbiog/

Talks will take place between mid afternoon Friday 16th September and mid afternoon Saturday 17th September. There will be optional workshops in the University Special Collections, and walking tours of sites of history of mathematics and science interest on Friday morning and early afternoon. On Friday evening there will be a wine reception and buffet supper followed by some entertainment yet to be confirmed.

Confirmed speakers include:

Jeremy Gray (Open University), biographer of Poincaré.

Steven Skiena (Stony Brook University, USA), author of *Who's Bigger* and leader of PeopleSimilarity.

Dagmar Mrozik (University of Wuppertal, Germany), the Jesuit Science Network, a biographical database.

Edmund Robertson (St. Andrews University), originator, author and developer of MacTutor.

Sydney Padua (independent), award winning graphic biography of Ada Lovelace.

Henrik Kragh Sørensen (Aarhus University, Denmark), biographical representations of Abel.

Graham Farmelo (Cambridge), award winning biographer of Paul Dirac.

Kris Grint (St Andrews University), crowdsourcing in the Transcribe Bentham project.

Eva Kaufholz (Johannes Gutenberg University, Germany), discussion of the varying portrayals of Sofya Kovalevskaya.

Philip Beeley (Oxford University), mathematical culture in Restoration England; Early Modern Letters Online.

Richard Simpson (BSHM), travels with MacTutor.

2. Curves in Honour of Leibniz's Tercentenary

27 October 2016
Gresham College, London

4.00pm: Dr. Snezana Lawrence (University of Bath)

Hold on to your chairs! – the mathematics of whirls, spirals, and curves

Curves have been studied throughout the history of mathematics, and Archimedean curve is one of the most famous among them. This lecture will explore the history of, and ways in which curves are generated, looking at both their practical and aesthetic applications. Archimedes had made curves already famous in his book *On Spirals*, written around 225 BC. The way Archimedes described, and employed spirals, is rich in both context and meaning. We will here explore some of these aspects of curves by him and by other mathematicians, and demonstrate their ways of generation. Thus a practical, historical, and mathematical survey, this talk will take you on a whistle tour of classical curves and spirals, beginning with the famous Archimedean spiral.

4.45pm: Prof. Kenneth Falconer (University of St. Andrews)

Fractal curves: from the esoteric to the ubiquitous

The lecture will consider the origins of certain 'fractal' curves that were constructed in the late 1800s/early 1900s to provide specific examples or counter-e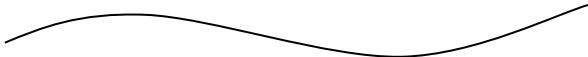xamples and which were regarded as 'pathological' oddities. For example, Riemann and Weierstrass constructed continuous curves that were nowhere differentiable, and von Koch's 'snowflake' curve exhibited a similar phenomenon. We will go on to see how, following the work of Mandelbrot and others, such curves are now regarded as members of a vast family of interesting and naturally occurring curves and fractal objects.

6.00pm: Gresham Lecture: Prof. Jan Van Maanen (University of Utrecht)

Mathematics and diplomacy:

Leibniz (1646-1716) and the curve of quickest descent.

Not only is mathematics challenging, mathematicians are also often challenging each other. The search for the quickest slide between two points in a vertical plane is such a challenge. It was launched 1695 by Johann Bernoulli and became famous as the Brachysto-chrone (shortest-time) problem. The launch in a journal article, repeated in Bernoulli's New Year wish for 1696, resulted in a long-lasting quarrel between Johann and his elder brother Jacob Bernoulli. Other mathematicians, among whom are Isaac Newton, got involved. This year's tercentenary of the death of Gottfried Leibniz puts Leibniz in the limelight. He deserves this in his own right, because his involvement reveals interesting mathematics as well as friendly diplomacy. With his letters and publications about the Brachystochrone Leibniz hoped to reconcile the two Bernoulli brothers, the first students of his new calculus, whom he valued highly.

ICMT2
II International Conference on Mathematics Textbook Research and Development

7-11 May 2017
Rio de Janeiro, Brazil

(II Conferência Internacional em Pesquisa e Desenvolvimento de Livros Didáticos de Matemática)

Research focused on the analysis and development of textbooks (in conventional format or digital media) has recently gained great prominence in the international arena of research in mathematics education. This prominence is reflected, for example, in the *International Conference on School Mathematics Textbooks (ICSMT)*, held in Shanghai in 2011, and in the ZDM special issue (Volume 45, Issue 5, September 2013), on textbooks research in mathematics education.

Also reflecting this trend, the first *International Conference on Mathematics Textbook Research and Development* (ICMT-2014) took place at the University of Southampton (UK), from 29 to 31 July 2014. About 180 participants, from 30 different countries, attended ICMT-2014. ICMT-2014 proceedings are available on http://eprints.soton.ac.uk/374809/. Visit also ICMT-2014's official website on: http://blog.soton.ac.uk/icmtrd2014/.

It is our pleasure to announce the *II International Conference on Mathematics Textbook Research and Development* / *II Conferência Internacional em Pesquisa e Desenvolvimento de Livros Didáticos de Matemática* (ICMT2), to be held from 7 to 11 May 2017, at the Federal University of Rio de Janeiro (UFRJ) and at the Federal University of the State of Rio de Janeiro (UNIRIO), Brazil.

The organization of ICMT2 in Brazil is a collaborative initiative of the Brazilian Society of Mathematics Education (SBEM), the Brazilian Mathematical Society (SBM), the Brazilian Society of Applied and Computational Mathematics (SBMAC) and the Mathematical Space in Portuguese Language/ International Committee on Mathematics Instruction (EMeLP / ICMI).

ICMT2 will feature different activities, including plenary lectures, symposia, workshops, oral presentations, posters and special activities addressed to teachers. Accepted and presented papers will be published after a peer-review process in Proceedings following the Conference.

Conference themes:
- Textbook research (concepts, issues, methods, directions, etc.)
- Textbook analysis (characteristics, treatment of contents and/or pedagogy, etc.)
- Analysis of historical textbooks
- Textbook use (by teachers, by students, and/or by other parties)
- Textbooks and student achievement
- Textbook development (domain/competence analyses, teaching

trajectories, task design, format of presenting the "content" to the student, format of presenting the "content" to the teacher (teacher guides))

- Textbook policies (governmental educational policy about textbooks, distribution, market strategies)
- Evolution of textbooks in the light of new digital technologies (including integration of ICT tools and innovation, e-textbook)
- Other disciplines in mathematics textbooks & mathematics in textbooks of other disciplines
- Other major relevant issues about mathematics textbooks

ICMT /2017

Modalities of contributions, besides invited lectures:

- oral presentation (in English, 30 minute presentation; abstract 1 page incl. references)
- symposium (in English, 180 mins)[1]
- workshop (in English, 120 mins)[2]
- workshop for teachers (in Portuguese, 120 mins)

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[1] A symposium is organised by one or more researchers to discuss jointly, based on submitted papers, a specific issue of the thematic spectrum of the conference.

[2] A workshop is a kind of activity that allows participants to work (in small teams) around prepared documents, guided by specific questions.

- poster presentation (1 page abstract, in English, one time slot, 60 minutes)

In general, each applicant can submit at most two proposals (including oral presentations, workshops, etc.) with his/her name as first author.

Key dates:

- submission of proposal for a symposium: 15 August 2016
- information about acceptance of a symposium proposal: 15 September 2016
- submission of paper abstracts within symposia: 31 October 2016
- abstract submission for oral presentation, workshop and poster: 31 October 2016
- information about acceptance of such submissions: 15 December 2016
- registration fee: will be informed in the next Announcement
- registration deadline: 3 January 2017
- Conference: 7-11 May 2017

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Further Information:

www.im.ufrj.br/~ictm2

icmt2@im.ufrj.br

The conference is organised by the Federal University of Rio de Janeiro (Universidade Federal do Rio de Janeiro, UFRJ), the State University of São Paulo (Universidade Estadual Paulista, UNESP), the Federal University of Pernambuco (UFPE) and the Federal University of the State of Rio de Janeiro (Universidade Federal do Estado do Rio de Janeiro, UNIRIO). It is supported by the Brazilian Society of Mathematics (SBM), the Brazilian Mathematics Education Society (SBEM), and the Brazilian Society of Applied and Computational Mathematics.

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These and other news of the HPM group are also available on the website

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(the online and on time version of this newsletter).

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The Newsletter appears three times a year with the following deadlines for next year.

No.	Deadline for material	Sent to distributors
93	**12 October 2016**	**November 2016**
94	12 February 2017	March 2017
95	12 June 2017	July 2017

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A note from the Editors

The Newsletter of HPM is primarily a tool for passing along information about forthcoming events, recent activities and publications, and current work and research in the broad field of history and pedagogy of mathematics. The Newsletter also publishes brief articles which they think may be of interest. Contributions from readers are welcome on the understanding that they may be shortened and edited to suit the compass of this publication.