

Activities in History of Mathematics in Utrecht and Leiden in the year 2005

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Personnel

- Prof. Dr. Henk J. M. Bos retired on January 1, 2005 as Full Professor of History of Mathematics in the Department of Mathematics of Utrecht University.
- Jan P. Hogendijk worked in the Department of Mathematics of Utrecht University in the following capacities: 0.8 associate professor (UHD) until November 15; 0.5 full professor of History of Mathematics and 0.3 associate professor starting November 15. All year 0.2 full professor of History of Mathematics at the Department of Mathematics of Leiden University.
International service:

- Secretary of the Executive Committee of the International Commission for the History of Mathematics (ICHM)
- Executive Member, Academie Internationale d’Histoire des Sciences

Member of the editorial board of the following journals in the history of science:

- Ganita-Bharati (Delhi, ISSN 0970-0307),
- Istoriko-Matematicheskii Issledovaniya (Moscow, ISBN 5-8037-0291-9),
- Suhayl (Barcelona, ISSN 1576-9372),

- Centaurus (Aarhus, ISSN 0008-8994),
 - Zeitschrift für Geschichte der arabisch-islamischen Wissenschaften (Frankfurt, ISSN 0179-4639),
 - Historia Mathematica (Amsterdam-San Diego, 0315-0860),
 - Ta'rikh-e Elm (Tehran, ISSN 1735-0573),
 - Journal for the History of Arabic Science (Aleppo, ISSN 0379-2927),
 - Early Science and Medicine (Leiden, ISSN 1383-7427).
- Kim Plofker: 1.0 Postdoctoral position, financed by the NWO project ‘Mathematics in India, 500 BCE - 1800 CE, with special emphasis on its relationship with Islamic mathematics (750 - 1800 CE).’ (MATHINDI, 613.000.430) Mrs Plofker was affiliated with the Department of Mathematics of Utrecht University (0,8) and the International Institute for Asian Studies at Leiden (0,2).
International service:
Member of the editorial board of the online-journal Aestimatio
<http://www.unc.edu/awmc/aestimatio.html>
Abstracts editor of the journal *Historia Mathematica* (Amsterdam-San Diego, 0315-0860),
 - Steven Wepster: 0.8 AIO (PhD student) in Utrecht.
 - Liesbeth de Wreede: 1.0 AIO in Utrecht until February 1; 0.2 assistant to Jan Hogendijk’s history of mathematics course in Leiden Sep. 1 – Dec. 31.
 - Jeanine Daems: 1.0 AIO in Leiden University, Department of Mathematics (supervisor: Prof. Hendrik Lenstra).

Publications

- Jan P. Hogendijk, *Structuur en schoonheid in de Sleutel tot de Rekenkunde van al-Kashi (ca. 1425)*, in Vakantiecursus 2004: Structuur in schoonheid, Amsterdam: Centrum voor Wiskunde en Informatica, 2004, CWI Syllabus 53, pp. 111-123, 77. Also appeared in Nieuw Archief voor Wiskunde, vijfde serie, deel 6, nummer 1 (maart 2005), pp. 32-39.
- Jan P. Hogendijk, *Geschenken uit het Oosten* (inaugural lecture, Leiden, 8 maart 2005), Nieuw Archief voor Wiskunde, vijfde serie, deel 6, nummer 4 (december 2005), pp. 280-286.
- Jan P. Hogendijk, *Applied mathematics in Eleventh Century Al-Andalus: Ibn Mu‘adh al-Jayyani and his computation of astrological houses and aspects*, Centaurus 47 (2005), pp. 87-114.
- Jan P. Hogendijk, *Omar Khayyam, wiskundige en wijnkenner*, in A-Eskwadraat Almanak ”Fata Morgana”, 2005, pp. 142-146.

- Henrik Kragh Sørensen, Exceptions and counterexamples: understanding Abel's comment on Cauchy's theorem, *Historia Mathematica* 32 (2005), pp. 453-480 [publication partly prepared during the 6-months NWO project "The Essence of Abel's Innovations: A Framework for an Account of his Mathematical Achievements", supervised by H.J.M. Bos in 2003-2004.]
- Kim Plofker, *Derivation and Revelation: The Legitimacy of Mathematical Models in Indian Cosmology*, pp. 61–76 in: T. Koetsier and L. Bergmans (eds.) *Mathematics and the Divine: A Historical Study*, Elsevier.
- Kim Plofker, *Relations between Approximations to the Sine in Kerala Mathematics*, pp. 135–152 in: G.C. Emch, R. Sridharan, M.D. Srinivas (eds.), *Contributions to the History of Indian Mathematics*, New Delhi, 2005.
- Bernard R. Goldstein, Kim Plofker, obituary notice: "In Memoriam David Edwin Pingree", *Aestimatio* 2 (2005), 71-72.
- Kim Plofker, *book review*: The Suryaprakasa of Suryadasa, volume 1 by Pushpa Kumari Jain (ed. and tr.), in: *Isis* 96 (2005), p. 273.
- Kim Plofker, *book review*: *Mathematics Across Cultures: The History of Non-Western Mathematics* by Helaine Selin (ed.), in: *British Journal for the History of Science* 38 (2005), p. 102-103.

Lectures

- Eelco A. Nederkoorn and Jan P. Hogendijk, *A computer-programmed version of a medieval Islamic instrument for the determination of the direction and distance to Mecca*, in the MAA-session "Mathematics in The Islamic World", Joint Mathematics Meeting, Atlanta, Georgia, USA, January 5.
- Jan P. Hogendijk, *Hard mathematics in the medieval Islamic tradition: al-Mahani's treatise on ratio theory*, in AMS-MAA Special Session on History of Mathematics I, Joint Mathematics Meeting, Atlanta, Georgia, USA, January 7.
- Jan P. Hogendijk, *Mathematics in Islamic Spain*, KFUPM, Dhahran, February 22.
- Jan P. Hogendijk, *Arabic Studies on Optics*, Physics Colloquium, KFUPM, Dhahran, February 26.
- Jan P. Hogendijk, *Islamic Mathematics*, Dhahran Highschool, February 27.
- Jan P. Hogendijk, *Al-Mahani's Theory of Ratios*, KFUPM Algebra and Applications Day, Dhahran, March 1.

- Jan P. Hogendijk, *The Oriental roots of the exact sciences* (in Dutch), “dispuut Prometheus”, Leiden, March 16.
- Jan P. Hogendijk, *workshop: A heptagonal Islamic mosaic in the North Cupola of the Friday Mosque*, Isfahan, House of Mathematics and Academy of Art, April 10.
- Jan P. Hogendijk, *Geschenken uit het Oosten*, inaugural lecture, Leiden, March 8. The lecture was also presented in English (*Gifts from the East*) at the General Colloquium, Department of Mathematics, University of Utrecht, on May 12.
- Jan P. Hogendijk, presentation at Woudschoten Conference on History of Science, Zeist, May 28.
- Jan P. Hogendijk, *Wiskundewedstrijden in een Italiaanse soap-opera*, Leiden: Leiden Mathematics Olympiad, June 3 (see *Nieuw Archief voor Wiskunde* 5/6 nr. 3, September 2005, pp. 237-9).
- Jan P. Hogendijk, *workshop Astrolabium*, First Dutch Summer School in the History of Science, Utrecht University, July 14.
- Jan P. Hogendijk, Eelco Nederkoorn and Berry van den Heuvel, *workshop Astrolabium*, summercourse ”Midden-Oosten: geschiedenis van cultuur en wetenschap”, Hoger Onderwijs voor Ouderen, Leiden, August 24. (40 participants)
- Jan P. Hogendijk, *workshop Astrolabium* for ”Spectrumbijvak Wetenschaps-geschiedenis”, Universiteit Leiden, October 27.
- Kim Plofker, *Transmission and impact of mathematical tables*, Joint Mathematics Meetings (AMS/MAA), Atlanta, USA, January 7.
- Kim Plofker, *Approximation algorithms in the Karanakutuhala of Bhaskara II*, seminar “Histoire des Mathématiques en Inde”, REHSEIS, Paris, France, May 9.
- Kim Plofker, *Science and history in the Vedic astronomy debate*, USHA, Utrecht, June 14.
- Kim Plofker, *Science and history in the debate over Vedic astronomy*, International Institute for Asian Studies, Leiden, July 13.
- Kim Plofker, *Mathematics made manifest: the Indian invention of algebra*, BA Festival of Science, Trinity College, Dublin, September 9.
- Kim Plofker *Sanskrit mathematical manuscripts*, Mathematical Textbooks: History, Production, and Influence, Oxford University, UK, September 24.

- Kim Plofker, *Concepts and strategies of proof in Indian mathematics*, General Colloquium, Department of Mathematics, University of Utrecht, October 20.
- Kim Plofker, *Concepts and strategies of proof in Indian mathematics*, Exact Sciences in Indian Antiquity, University of Ontago, New Zealand, December 5.
- Liesbeth de Wreede, *Reason and Observation: Snellius and Astronomy*, USHA, Utrecht, November 8.
- Liesbeth de Wreede, *Snellius en zijn instrumenten: boeken, vrienden, en quadranten*, Neolatinistendag, November 11.
- Steven Wepster, *Spreadsheets and model fitting in the 1750's*, Joint meeting of the Belgian, Dutch, Luxembourg and French Mathematical Societies, Gent, May 22.
- Steven Wepster, *Unexpected Newtonianism in Tobias Mayer's Lunar Tables: The Horrox Legacy*, Novembertagung 2005, Paris, November 4.
- Jeanine Daems, *Bieberbach's solution to the 18th Hilbert problem*, Novembertagung 2005, Paris, November 6.
- Jeanine Daems, *A historical introduction to mathematical crystallography*, Intercity Seminar Number Theory, Leiden, 16 december 2005.

Media

- *Zeep voor de Geest*, interview of Jan P. Hogendijk by Dirk van Delft in Nieuwe Rotterdamse Courant, saturday March 12.
- Interview of Jan P. Hogendijk in the radio program "Verkenningen", Nederlandse Moslim Omroep, May 10, 2005.

Visitors from abroad

- Dr. Christian Tapp (Carnegie Mellon), lectured on *Georg Cantor, the founder of set theory, in contact with catholic theologians of his time*, April 28.
- Drs. Silvia Harmsen (Heidelberg), lectured on *Muqarnas in Ilkhanid Islamic Architecture (1256-1353): Mathematical Concepts and Computer Reconstructions*, Friday December 2.
- Dr. Djura Paunic, Novi Sad (Serbia), visited in January and December.

Organization of Conferences

- Mathematics across cultures, Leiden, March 8 2005.
On the occasion of Jan Hogendijk's inauguration in Leiden (which happened to take place on International Women's Day).

Programme:

- Liesbeth de Wreede, *Number is the measure of all: Snellius on the use of numbers in geometry.*
- Kim Plofker, *Heron's formula and the geometry of quadrilaterals in Indian mathematics.*
- Karen Parshall (University of Virginia), *The British Development of the Theory of Invariants (1841-1895).*

- Henk Bos Valedictory Symposium, Utrecht, 30 juni 2005.
The conference was attended by several international historians of mathematics, including Prof. Dr. Geert Vanpaemel (Leuven), Prof. Dr. David Rowe (Mainz), and Dr. Benno van Dalen (Frankfurt). The event was sponsored by the ICHM and the MRI.

Programme:

- Jan Hogendijk: Opening address.
- Annette Imhausen (Cambridge, UK): *Administration, Education, Representation: The Various Uses of Mathematics in Ancient Egypt.*
- Volker Remmert (Mainz, Germany): *Antiquity, Nobility and Utility: Picturing the Mathematical Sciences in the Early Modern Period.*
- Henk Bos, *Loose Ends.*
- Jeremy Gray, *Unconcluding Remarks.*

Honours and Awards

- Henk J.M. Bos received the Kenneth O. May Prize, See *Historia Mathematica* 32 (2005), pp. 397-399; *Nieuw Archief voor Wiskunde*, vijfde serie deel 6, no. 3 (sept 2005) p. 190. Jeremy Gray presented the prize on Henk's valedictory symposium.
- Jan P. Hogendijk received the World Book of the Year award of the Islamic Republic of Iran out of the hands of President Khatami in Tehran on February 8, for the book: Jan P. Hogendijk and A.I. Sabra (eds.), *The Enterprise of Science in Islam: New Perspectives*, Cambridge Mass., MIT Press, 2003.
- Jan P. Hogendijk received the Onderwijsprijs (teaching award) of the Faculteit der Wiskunde en Natuurwetenschappen, Leiden, on 17 March 2005.

- Jan P. Hogendijk is Adjunct Professor at the Department of Mathematical Sciences of King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia www.kfupm.edu.sa/math.

Courses

- Jan P. Hogendijk: History of Mathematics, 2nd year students. Spring 2005 (Utrecht, 20 students), and Fall 2005 (Utrecht, Leiden, 30 students).
- Jan P. Hogendijk: Seminar in the History of Mathematics for 3d year students, 10 students, Spring 2005, Leiden. The focus was on Dutch Mathematics of the late 16th and 17th century (the Golden Age). A permanent web page (www.wiskonst.nl) was created in order to enhance the accessibility of Dutch mathematics of that period.
- Jan P. Hogendijk and B. Radtke: Islamic Science, 15 students, Spring 2005, Utrecht.
- Steven Wepster: Assistant to the History of Mathematics course, Fall 2005, Utrecht.
- Liesbeth de Wreede: Assistant to the History of Mathematics Seminar, Spring 2005, and the History of Mathematics course, Fall 2005, both in Leiden.

Courses: not history-related

- Jan P. Hogendijk: Wat is wiskunde (first-year course on the concept of mathematical proof).
- Steven Wepster: Mathematics course for biology students, January 2005.
- Steven Wepster: exercise sessions in Fourier theory, Fall 2005.
- Jeanine Daems: Tutorials Algebra 1 & 2 (Leiden), Spring & Fall 2005.

M.Sc. theses, publications and other work by students in history of mathematics

- Eelco Nederkoorn accompanied Jan Hogendijk to Atlanta, Georgia, USA and presented a workshop (see above under **lectures**).
- Mattias Visser: de Topkapi boekrol [the Topkapi Scroll], Arthesis (see www.arsetmathesis.nl) vol. 19 (2005), no. 2, pp. 8-16. (based on M.Sc. thesis in History of Mathematics, 2003).
- Eelco Nederkoorn, Richting Mekka, in A-Eskwadraat Almanak "Fata Morgana", 2005, pp. 135-138 (based on visit to Saudi Arabia in 2004)

- Melia Voss: Eindig of Oneindig, waar of niet waar? Master Thesis (for M. Sc. in Mathematics), supervised by Henk Bos.
- Linda van Meerkerk: Meetkunde-onderwijs in de 18e eeuw: een vergelijkende studie van drie didactische opvattingen. Master Thesis (for M. Sc. in Mathematics), supervised by Henk Bos.
- Michiel Kwetters, *Ludolph van Ceulen's Arithmetische en Geometrische Fondamenten*, Master Thesis (for M. Sc. in Science and Education), supervised by Jan Hogendijk.
- Essays written by participants of the course "History of Mathematics", Spring 2005:
 - Hanneke van Deutekom, Dominique van de Klugt, Meike Rouwenhorst: *Negentiende-eeuwse vrouwen in de wiskunde*
 - Rob van den Hengel, Lotte van den Berg: *Sona (Afrikaanse zandtekeningen)*
 - Henk Hietbrink, Janneke Siers, Pieter van Winsen: *Op de rand van de oneindigheid, essay voor de cursus Geschiedenis van de Wiskunde*
 - Jan Hilhorst, Tamara Eggenhuisen: *Over vroege ontwikkelingen in de trigonometrie*
 - Rogier Kok, Nazir Rostayar: *Georg Cantor en zijn verzamelingenleer*
 - Claire Linders, Merel Rietbergen: *Egyptische Talstelsel en rekenmethoden*
 - Linda van Meerkerk, Nelleke Steendam: *De Papyrus Rhind*
 - Jos Mertens, Miriam Korstanje: *Lineair Perspectief in de Renaissance Kunst*
 - Erik Sander Smits, Vincent Vis: *De geest van René Descartes in de wiskunde: over hoe filosofie wiskunde beïnvloeden kan*
- Essays written by participants of the course "Islamic Science", Spring 2005:
 - Minne G. de Boer, Joost van der Lijn: *Een taalkundige vergelijking van de Arabische en Latijnse versies van de Algebra van Al-Khwarizmi*
 - Cintia K. Carbajal Henken, Hans Pul: *De Vrijdagmoskee van Isfahan, een verkenning*
 - Wilfred de Graaf, Sjors Provoost: *Refractie en Islamitische gebedstijden*
 - Hieke Huistra, Jan Beuving: *Het wereldbeeld van al-Biruni*
 - Timo Koffeman, Arjan Zaal: *Omar Khayyam*

- Erik Methorst, Cristel Dierick: *Vergelijken van stercatalogi (van Ptolemaeus en Ulugh Beg)*
- Irem Santoe, Goushani Kisoensingh, *De architectuur van de moskee*
- Huseyin Sen: *Een hoofdstuk van het boek over automaten van Taqī al-Dīn*
- Davud Shekary, Florian Pelupessy: *Al-Biruni en India aan de hand van (al-Biruni's werken) "al-Saydanah" en "India"*
- Gido van der Star, Anneke Batenburg: *Gewicht in de Arabische wetenschap*
- Anne Christine van Veen: *Al-Farabi*