

# Curriculum Vitae for Helmer Aslaksen

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## General

### Contact Information

Department of Mathematics	+65 6516–2746 (office)
National University of Singapore	+65 6402–8575 (home)
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Singapore	aslaksen@math.nus.edu.sg
	www.math.nus.edu.sg/aslaksen/

### Personal Data

Born in 1960 in Oslo, Norway. Norwegian citizen and a permanent resident of Singapore.

### Education

- University of California, Berkeley, USA, Ph.D., title: Laws of Trigonometry on  $SU(3)$ , advisor, Wu-Yi Hsiang, 1982 to 1988.
- University of Oslo, Norway, Cand. mag. (equivalent to B.S.), major in mathematics, minor in statistics, 1979 to 1982.

### Experience

- University of Oslo, Norway, visiting researcher, 2006.
- National University of Singapore, Lecturer, Senior Lecturer, Assistant Professor and Associate Professor in the Department of Mathematics, 1989 to present.
- University of California, Berkeley, USA, sabbatical, 2004 to 2005.
- University of California, San Diego, USA, sabbatical, 1997 to 1998.
- FFI (Norwegian Defence Science Research Establishment), Research Assistant as part of military service in Norway, 1988 to 1989.
- University of California, Berkeley, USA, Teaching Assistant in the Department of Mathematics, Instructor in Teaching Assistant Training Workshop, and Residence Hall Tutor, 1982 to 1988.
- University of Oslo, Norway, Teaching Assistant in the Department of Mathematics and the Department of Economics, 1979 to 1982. I got my first job as a Teaching Assistant at the university while I was still in high school.

## List of Publications

### Pure Mathematics

1. Helmer Aslaksen, *SO(2) invariants of a set of  $2 \times 2$  matrices*, *Mathematica Scandinavica* **65** (1989), 59–66. MR 91d: 15010, Zbl 0679.15029.
2. Helmer Aslaksen, *Laws of trigonometry on SU(3)*, *Transactions of the American Mathematical Society* **317** (1990), 127–142. MR 90d: 53047, Zbl 0695.53037, JSTOR.
3. Helmer Aslaksen, *Restricted homogeneous coordinates for the Cayley projective plane*, *Geometriae Dedicata* **40** (1991), 245–250. MR 92h: 51003, Zbl 0758.51001, SpringerLink.
4. Helmer Aslaksen, Terje Wahl and Tore Wentzel-Larsen, *Root multiplicities and ideals in quasisimple Lie algebras*, *Mathematica Scandinavica* **73** (1993), 15–20. MR 95a: 17011, Zbl 0792.17020.
5. Helmer Aslaksen, *Determining summands in tensor products of Lie algebra representations*, *Journal of Pure and Applied Algebra* **93** (1994), 135–146. MR 95b: 17008, Zbl 0815.17006, ScienceDirect.
6. Helmer Aslaksen, Eng-Chye Tan and Chen-bo Zhu, *Generators and relations of invariants of  $2 \times 2$  matrices*, *Communications in Algebra* **22** (1994), 1821–1832. MR 95c: 15061, Zbl 0813.16015.
7. Helmer Aslaksen, Eng-Chye Tan and Chen-bo Zhu, *Quivers and the invariant theory of Levi subgroups*, *Journal of Functional Analysis* **120** (1994), 163–187. MR 94k: 16023, Zbl 0817.22008, ScienceDirect.
8. Helmer Aslaksen and Eng-Chye Tan, *Generic  $2 \times 2$  matrices with involution*, *Manuscripta Mathematica* **83** (1994), 365–385. MR 95c: 16030, Zbl 0814.16019.
9. Helmer Aslaksen, Eng-Chye Tan and Chen-bo Zhu, *Free Resolutions of Generic Symmetric Matrices*, *Linear Algebra and its Applications* **230** (1995), 21–34. MR 96h: 13032, Zbl 0840.13001, ScienceDirect.
10. Helmer Aslaksen, Eng-Chye Tan and Chen-bo Zhu, *Invariant Theory of Special Orthogonal Groups*, *Pacific Journal of Mathematics* **168** (1995), 207–215. MR 96f: 13004, Zbl 0830.15027, Project Euclid.

11. Helmer Aslaksen, Eng-Chye Tan and Chen-bo Zhu, *On certain rings of highest weight vectors*, *Journal of Algebra* **174** (1995), 159–186. MR 96h: 13011, Zbl 0828.22019, ScienceDirect.
12. Helmer Aslaksen, Eng-Chye Tan and Chen-bo Zhu, *On  $O_m \times GL_n$  highest weight vectors*, “Symmetries in Science VIII”, B. Gruber (ed.), Plenum Press, 1995, 1–11. MR 97a: 13009, Zbl 0919.22005.
13. Helmer Aslaksen, Eng-Chye Tan and Chen-bo Zhu, *Invariant theory of matrices*, “Symmetries in Science VIII”, B. Gruber (ed.), Plenum Press, 1995, 13–19. MR 96m: 16033, Zbl 0930.16013.
14. Helmer Aslaksen, Shih-Ping Chan and Tor Gulliksen, *Invariants of  $S_4$  and the shape of sets of vectors*, *Applicable Algebra in Engineering, Communication and Computing* **7** (1996), 53–57. MR 98g: 13004, Zbl 0849.20007, SpringerLink.
15. Helmer Aslaksen, *Quaternionic determinants*, *The Mathematical Intelligencer*, **18** (1996), no. 3, 56–65. MR 97j: 16028, Zbl 0881.15007. (Reprinted in “Mathematical Conversation: Selections from The Mathematical Intelligencer”, Robin Williams and Jeremy Gray (eds.), Springer-Verlag, 2001, 142–156. Japanese translation, Springer-Verlag Japan, 2003, 187–209.)
16. Helmer Aslaksen and Hsueh-Ling Huynh, *Laws of trigonometry in symmetric spaces*, “Geometry from the Pacific Rim”, A. J. Berrick et al (eds.), Walter de Gruyter, 1997, 23–36. MR 98j: 53057, Zbl 0891.53034.
17. Helmer Aslaksen, Soo Teck Lee and Judith Packer, *K-theory for the integer Heisenberg groups*, *K-theory* **16** (1999), 201–227. MR 2000m: 19011, Zbl 0917.19003, SpringerLink.
18. Helmer Aslaksen, *Quaternionic determinants*, “Mathematical Conversation: Selections from The Mathematical Intelligencer”, Robin Williams and Jeremy Gray (eds.), Springer-Verlag, 2001, 142–156.
19. Helmer Aslaksen, *Quaternionic determinants*, “Mathematical Conversation: Selections from The Mathematical Intelligencer” (Japanese translation), Robin Williams and Jeremy Gray (eds.), Springer-Verlag Japan, 2003, 187–209.
20. Helmer Aslaksen and Mong Lung Lang, *Extending  $\pi$ -systems to bases of root systems*, *Journal of Algebra* **287** (2005), 496–500. MR 2005k:17008, Zbl 1128.17007, Science Direct.

21. Helmer Aslaksen, Vesselin Drensky and Liliya Sadikova, *Defining relations of invariants of two  $3 \times 3$  matrices*, Comptes rendus de l'Académie bulgare des Sciences, **58** (2005), 617–622. MR 2006b:16034, Zbl 1076.16019.
22. Helmer Aslaksen, Vesselin Drensky and Liliya Sadikova, *Defining relations of invariants of two  $3 \times 3$  matrices*, Journal of Algebra **298** (2006), 41–57. MR 2007b:16049. Zbl 1100.16019, Science Direct.
23. Helmer Aslaksen and Arne B. Sletsjøe, *Generators of matrix algebras in dimension 2 and 3*, to appear in Linear Algebra and its Applications. DOI.

### Computer Science

- CS-1. Helmer Aslaksen, *Ten  $\TeX$  tricks for the mathematician*, TUGboat, Communications of the  $\TeX$  Users Group **14** (1993), 135–136.
- CS-2. Helmer Aslaksen, *Multiple-valued complex functions and computer algebra*, ACM SIGSAM Bull. **30** (1996), 12–20. Zbl 1097.30500.
- CS-3. Helmer Aslaksen, *Can your computer do complex analysis?*, “Computer Algebra Systems: A Practical Guide”, M. Wester (ed.), John Wiley, 1999, 73–78. Zbl 0924.68102.
- CS-4. Helmer Aslaksen, *Chinese  $\TeX$ : Using the CJK  $\LaTeX$ Package, Unicode TrueType Fonts and  $\text{PDF}\TeX$  under Windows*, The Prac $\TeX$  Journal 2 (2006), no. 1.

### Astronomy

- Astro-1. Akmal bin Abd. Rahman, Amit Jain and Helmer Aslaksen, *Astronomy and Calendars*, Proceedings of the First Youth Science Conference 1995 Singapore, Ministry of Education, Singapore, 1995, 129–132. ISBN 981-00-6735-6.
- Astro-2. Helmer Aslaksen, *The mathematics of the Chinese calendar*, preprint, National University of Singapore, 1999, [www.math.nus.edu.sg/aslaksen/calendar/cal.pdf](http://www.math.nus.edu.sg/aslaksen/calendar/cal.pdf).
- Astro-3. Helmer Aslaksen and Veronica CHIN Hei Ting, *The mathematics of the Chinese calendar*, Proceedings of Science Research Congress 1999 Singapore, ISSN 0218-4869.

- Astro-4. Helmer Aslaksen, *Fake leap months in the Chinese calendar: From the Jesuits to 2033*, “Historical Perspectives on East Asian Science, Technology and Medicine”, Alan K.L. Chan, Gregory K. Clancey and Hui-Chieh Loy (eds.), Singapore University Press/World Scientific, 2002, 387–393.
- Astro-5. Helmer Aslaksen, *When is Chinese New Year?*, Griffith Observer, **66** (2002), no. 2 (February), 1–17.
- Astro-6. Helmer Aslaksen, *Når faller kinesisk nyttår?*, (Norwegian, When is Chinese New Year?), Normat (Nordisk matematisk tidsskrift) **51** (2003), no. 3, 132–141. Zbl 1034.01005.
- Astro-7. Helmer Aslaksen, *Heavenly Mathematics: Observing the Sun and the Moon from Different Parts of the World*, submitted.

### Mathematics in Art

- Art-1. Helmer Aslaksen, *Book review of Claude P. Bruter (ed), Mathematics and Art: Mathematical Visualization in Art and Education*, Mathematical Intelligencer **25** (2003), no. 4, 83–84.
- Art-2. Helmer Aslaksen, *Book review of Doris Schattschneider and Michele Emmer (eds.), M.C. Escher’s Legacy: A Centennial Celebration*, Mathematical Intelligencer **26** (2004), no. 3, 73–74.
- Art-3. Helmer Aslaksen, *A Contrarian View of Teaching Mathematics and Art*, “Art+Math=X”, Carla Farsi (ed.), University of Colorado, Boulder, 2005, 1–4.
- Art-4. Helmer Aslaksen, *Book review of The Curious Incident of the Dog in the Night-time by Mark Haddon*, Notices of the American Mathematical Society **53** (2006), no. 3, 343–345. AMS.
- Art-5. Helmer Aslaksen, *In search of Demiregular Tilings*, “Bridges London, Mathematical Connections in Art, Music and Science”, Reza Sarhangi and John Sharp (eds.), Tarquin Publications, 2006, 533–536. ISBN: 0–9665201–7–3.

### Mathematics in Politics

- Politics-1. H.Asalaksen and Gary McGuire, *Mathematical Aspects of Irish Elections*, Irish Mathematics Teachers Association Newsletter 105 (2006), 40–59.

## Mathematics Education

- Ed-1. Helmer Aslaksen, *Math is not a spectator sport*, “Teaching of Science at Tertiary Level (Singapore, 1991)”, M. A. Karolewski and Y. M. Teo (eds.), Faculty of Science, National University of Singapore, 1991, 62–63. ISBN 9971–62–273–4.
- Ed-2. Helmer Aslaksen, *Some thoughts about the use of computer algebra systems in university teaching*, Innovative Use of Technology for Teaching & Research in Mathematics, Proceedings of the First Asian Technology Conference in Mathematics 1995 Singapore, Association of Mathematics Educators, Singapore, 1995, 81–84. ISBN 981–3025–06–9.
- Ed-3. Helmer Aslaksen, *Is IT it?*, CDTLBrief, Centre for Development of Teaching and Learning, National University of Singapore, **2** (1999), no. 2, p. 6.
- Ed-4. Helmer Aslaksen, *The emperor’s new web*, Reflections on Teaching, Centre for Development of Teaching and Learning, 1999, p. 115.
- Ed-5. Helmer Aslaksen, *Using an electronic discussion forum in teaching*, Proceedings of the First Symposium on Teaching & Learning in Higher Education, Centre for Development of Teaching and Learning, National University of Singapore, 2000, 419–420.
- Ed-6. Helmer Aslaksen and NG Kah Loon, *The Graduate Tutor Training Workshop in the Department of Mathematics*, CDTLBrief, Centre for Development of Teaching and Learning, National University of Singapore, **6** (2003), no. 6, 11–12.
- Ed-7. Helmer Aslaksen, *Why do we give lectures?*, Ideas on Teaching, Centre for Development of Teaching and Learning, National University of Singapore, **2** (2003), 40–41.
- Ed-8. Helmer Aslaksen, *The Joy of GEM*, CDTLBrief, Centre for Development of Teaching and Learning, National University of Singapore, **7** (2004), no. 9, 2–4.
- Ed-9. Helmer Aslaksen, “*Heavenly Mathematics: Cultural Astronomy*” and “*Mathematics in Art and Architecture*”: *Two general education courses at the National University of Singapore*, “Relations between mathematics and other subjects of science or art, Proceedings of Topic Study Group 21 at ICME-10, The 10th International Congress on Mathematics Education, Copenhagen, Denmark, 2004”, Marta Anaya and Claus Michelsen (eds.), Department of Mathematics and Computer Science, University of Southern Denmark, 2005, 44–50.

- Ed-10. Helmer Aslaksen, *Teaching “Heavenly Mathematics: Cultural Astronomy” and “Mathematics in Art and Architecture”*, “Proceedings of the International Conference on Education, 2005”, Francis E.H. Tay, Tay Seng Chuan, Shen Han-Ming (eds.), National University of Singapore, 2005, 498–501.
- Ed-11. Helmer Aslaksen and Svein Sjøberg, Skil norsk skole kopiere Singapore? (Should Norwegian schools copy Singapore?), kronikk (op-ed), Dagbladet, Oslo, Norway, 29 March 2006.
- Ed-12. Helmer Aslaksen, *PSLE 2005 and Curry’s Paradox*, *Mathematical Medley* **32** (2005), no. 2, 2–9.
- Ed-13. Helmer Aslaksen, *Creating Impossible Figures When Changing Numbers in Geometry Problems*, *Maths Buzz*, **8** (2007), no. 2, 6.

## Scholarship

### Awards, Honors and Prizes

- The course page for Mathematics in Art and Architecture was named Editor's Choice in the *Mitteilungen der DMV* (Notices of the German Mathematical Society), 2004.
- My paper "Quaternionic determinants", which was originally published in *The Mathematical Intelligencer* in 1996, was among the articles selected to be reprinted in "Mathematical Conversation: Selections from *The Mathematical Intelligencer*", compiled by Robin Williams and Jeremy Gray, Springer-Verlag, 2001.
- Fourth prize in the Fifth Annual Boeing Writing Contest in 2001 for the paper "When is Chinese New Year?". (Organized by the Griffith Observatory in Los Angeles. Sponsored by Boeing.)

### Grants

- Principal Investigator for Academic Research Grant for "Serious Popularization of Mathematics and Popularization of Serious Mathematics — Mathematics in Astronomy, Art and Politics", SGD 26,675 (approximately USD 15,000), National University of Singapore, 2005.
- Co-investigator for National Academic Research Grant for "Algebra of Invariants" Eng-Chye Tan and Chen-bo Zhu, SGD 159,300 (approximately USD 100,000), National University of Singapore, 1997.
- Doctoral grant from NAVF (Norwegian equivalent of NSF) for my Ph.D., University of California, Berkeley, 1985.
- Fulbright grant for my Ph.D., University of California, Berkeley, USA, 1982.
- Grant from Norge-Amerika Foreningen (The Norway-America Association) for my Ph.D., University of California, Berkeley, USA, 1982.

### Editorial Boards

- Editorial Board, *Journal of Mathematics and the Arts*, Taylor & Francis, 2006 to present.

### **Conference Committees**

- International Programme Committee for the joint ICMI (International Commission on Mathematical Instruction)/ICIAM (International Council for Industrial and Applied Mathematics) Study on the theme “Educational Interfaces between Mathematics and Industry — ICMI Study 20”.
- Organizing Committee for a Topic Study Group at the International Congress on Mathematical Education, Copenhagen, Denmark, 2004.

### **Invitations to Major Lecture Series**

- Bay Area Mathematics Adventure, [mathematicaladventures.org](http://mathematicaladventures.org), San Jose State University, 2005.
- Winkelmann Mathematics and Society Lecture Series, Macalester College, USA, 2004. (An annual lecture series in mathematics, past speakers include Herb Wilf, Gilbert Strang, and Tom Banchoff.)

### **Conference Talks**

- Keynote speaker, Working Conference on Ecology and Time Systems in Australasia and the Americas: New approaches to value systems and calendrical transformations across the Pacific Rim, University of Virginia, USA, 2009.
- Mathematical Association of America Contributed Paper session on Mathematics and Art, Washington DC, USA, 2009.
- Mathematical Association of America Contributed Paper session on Using Ideas from Asian Mathematics in the Classroom, San Diego, USA, 2008.
- Keynote speaker, 3rd Mathematics and Physical Science Graduate Congress, University of Malaya, Kuala Lumpur, Malaysia, 2007.
- Mathematical Association of America Contributed Paper Session on Innovative and Effective Ways to Teach Linear Algebra, New Orleans, USA, 2007.
- The Bridges Conference: Mathematical Connections in Art, Music, and Science, London, 2006.

- Plenary speaker, International Conference on Education (ICE'05), Singapore, 2005.
- Art+Math=X, Conference in honor of the 60th birthday of Michele Emmer, Boulder, USA, 2005.
- Plenary speaker, Spring Meeting of the Southern California and Nevada Section of the Mathematical Association of America, Los Angeles, USA, 2005.
- Mathematical Association of America Contributed Paper Session on Mathematics in the Islamic World, Joint Mathematics Meeting, Atlanta, USA, 2005.
- Panelist, Workshop on Math Circles and Math Olympiads, Mathematical Sciences Research Institute, Berkeley, USA, 2004.
- Mathematical Association of America Contributed Paper Session on Uses of the WWW that Enrich and Promote Learning, MathFest, Providence, USA, 2004.
- Topic Study Group on Relations Between Mathematics and Other Subjects of Art and Science, International Congress on Mathematical Education, Copenhagen, Denmark, 2004.
- Plenary Speaker, 10th anniversary of The Association of Mathematics Educators, National Institute of Education, Singapore, 2004.
- Workshop on Time, University Scholars Programme, National University of Singapore, 2004.
- Mathematical Association of America Contributed Paper Session on Mathematics and the Arts, Joint Mathematics Meeting, Phoenix, USA, 2004.
- Mathematical Association of America Contributed Paper Session on Mathematical Connections in Art, Music, and Science, Joint Mathematics Meeting, Baltimore, USA, 2003.
- Mathematical Association of America Contributed Paper Session on Integrating Mathematics and Other Disciplines, Joint Mathematics Meeting, San Diego, USA, 2002.
- Keynote speaker, 2nd Joint Polytechnic Mathematics Conference, Singapore Polytechnic, Singapore, 2001.

- First Symposium on Teaching & Learning in Higher Education, National University of Singapore, 2000.
- Ninth International Conference on the History of Science in East Asia, Singapore, 1999.
- Mathematical Association of America Contributed Paper Session on The Use of Technology in Teaching Abstract Mathematics, Joint Mathematics Meeting, San Antonio, USA, 1999.
- Facilitator for a workshop on computer algebra in teaching, Conference on Challenges of Calculus Education in Singapore, National Institute of Education, Singapore, 1998.
- Plenary Speaker, Summer School on Representation Theory of Lie Algebras, Nordfjoreid, Norway, 1997.
- Satellite Conference on Differential Geometry at European Congress of Mathematics, Budapest, Hungary, 1996.
- The 2nd IMACS (International Association for Mathematics and Computers in Simulation) Conference on Applications of Computer Algebra, Linz, Austria, 1996.
- American Mathematical Society Special Session on Group Representations and Mathematical Physics, American Mathematical Society Meeting, Iowa City, USA, 1996.
- First Asian Technological Conference in Mathematics, Singapore 1995.
- Poster presentation, International Congress of Mathematicians, Zürich, Switzerland, 1994.
- Symmetries in Science VIII, Bregenz, Austria, 1994.
- Geometry from the Pacific Rim, National University of Singapore, 1994.
- American Mathematical Society Special Session on Invariant Theory, Joint Mathematics Meeting, Baltimore, USA, 1992.
- Teaching of Science at Tertiary Level, National University of Singapore, 1991.
- American Mathematical Society Summer Institute on Differential Geometry, UCLA, USA, 1990.

- Scandinavian Congress of Mathematicians, Trondheim, Norway, 1988.

### **Seminar Talks**

- The Research Council of Norway, 2006.
- California State University, Hayward, USA, 2005.
- California State University, Northridge, USA, 2005.
- University of Redlands, USA, 2005. (Jointly organized by the Departments of Mathematics, History and Asian Studies!)
- Occidental College, USA, 2005.
- University of San Francisco, USA, 2005.
- Santa Clare University, USA, 2005.
- Mills College, USA, 2005.
- Harvey Mudd College, USA, 2004.
- Sonoma State University, USA, 2004 and 2005.
- St. Olaf College, USA, 2004.
- Macalester College, USA, 2004.
- Singapore Polytechnic, 2004.
- Department of Computer Science, National University of Singapore, 2003.
- Department of History, National University of Singapore, 2003.
- California State University, Dominguez Hills, USA, 2001.
- Loyola Marymount University, USA, 2000 and 2004.
- Pacific Lutheran University, USA, 1999.
- University of California, San Diego, USA, 1998.
- University of San Diego, USA, 1998, 2001 and 2005.
- University of Basel, Switzerland, 1996.

- University of Mulhouse, France, 1996.
- University of Tokyo, Japan, 1993 and 1994.
- Norwegian University of Science and Technology, Trondheim, Norway, 1993, 1995 and 2006.
- University of Bergen, Norway, 1993, 1995 and 2006.
- University of Hawaii at Manoa, USA, 1990, 1992 and 1994.
- University of Oslo, Norway, 1988, 1993, 1995, 1996 and 2006.
- University of California, Berkeley, USA, 1988.
- University of Tromsø, Norway, 1986, 1993 and 1995.

### **Refereeing**

- Referee for the following journals.
  - Journal of Mathematics and the Arts, 2006.
  - Computer Surveys, 2004.
  - American Journal of Physics, 2003.
  - Algebras and Representation Theory, 2000.
  - Mathematische Annalen, 1995.
  - Geometriae Dedicata, 1991 and 1993.
- Reviewer of books from the following publishers.
  - Princeton University Press, 2006.
  - World Scientific, 2005, 2006.
  - Springer Verlag, 2002, 2004 and 2005.
  - Oxford University Press, 2003.
  - Cambridge University Press, 1998.
- Reviewer for grants.
  - University research grant at the University of Illinois at Urbana-Champaign, 1999.

- Reviewer of textbooks for the Ministry of Education.
  - Mathematics, Secondary 1 and 2, 2007.
  - Additional Mathematics, Secondary 3 and 4, 2006 and 2008.
- Reviewer of courses at other universities.
  - E-learning module at SIM University, Singapore, 2009.

### **Service to the International Mathematical Community**

- Translator of publicity material for the Abel Prize Committee, 2007, 2008 and 2009.
- Online Editor, SIGMAA (Special Interest Group Mathematical Association of America) on “Mathematics and the Arts”, 2006 to present.
- Euler Book Prize Committee, Mathematical Association of America, 2005 to present.
- Editor of the Abel Gazette for the Abel Prize presentation, Oslo, Norway, 2003.
- Editor of the Abel Gazette for the Niels Henrik Abel Bicentennial Conference, Oslo, Norway, 2002.
- External examiner, Ph.D. thesis of G. Masala, “Trigonométrie et polyèdres dans les variétés de Grassmann  $G_2(\mathbb{R}^n)$ ”, Université de Haute Alsace, Mulhouse, France, 1996.

### **Academic Consulting**

- Mathematics Exhibition Advisory Committee, Science Centre Singapore, 2008.
- Academic consultant for the exhibition “Art Figures, Mathematics in Arts” at the Singapore Art Museum, 2002.
- Academic consultant for the 2-hour program “Ancient Chinese Inventions” on the Discovery Channel, 2002.

- Academic consultant for a program on Chinese New Year on the PBS radio show Earth & Sky. Earth & Sky is funded by the National Science Foundation and heard by nearly 4 million U.S. listeners, 2001.
- Academic consultant for the exhibition “The Dating Game — Calendars and Time in Asia” at The Asian Civilisations Museum, 2000.

### Web Sites

- I have an extensive web site. My web page on the Chinese calendar ([www.chinesecalendar.org](http://www.chinesecalendar.org)) averages about 15,000 visits each month. Of these visitors, about 7,000 download my paper “The Mathematics of the Chinese Calendar” ([www.math.nus.edu.sg/aslaksen/calendar/cal.pdf](http://www.math.nus.edu.sg/aslaksen/calendar/cal.pdf)). Around the time of Chinese New Year I get about 50,000 hits a month.
- The course page for “Heavenly Mathematics & Cultural Astronomy” ([www.heavenlymathematics.com](http://www.heavenlymathematics.com)) is linked to by many leading astronomy and mathematics sites.
- The course page for “Mathematics in Art and Architecture” ([www.math.nus.edu.sg/aslaksen/teaching/maa.html](http://www.math.nus.edu.sg/aslaksen/teaching/maa.html)) was named Editor’s Choice in the *Mitteilungen der DMV* (Notices of the German Mathematical Society), 2004.

## Teaching

### Teaching Awards, Honors and Prizes

- GEM Incentive Award, 2005-2006 Semester 1.
- Outstanding Educator Award, National University of Singapore, 2003/2004.
- Annual Teaching Excellence Award, National University of Singapore, 2001-2002, 2002-2003 and 2003-2004.
- Faculty Teaching Excellence Award, Faculty of Science, National University of Singapore, 2001-2002, 2002-2003 and 2003-2004.
- The course page for Mathematics in Art and Architecture was named Editor's Choice in the Mitteilungen der DMV (Notices of the German Mathematical Society), 2004.
- Distinguished Teaching Assistant Award, University of California, Berkeley, USA, 1984.

### Student Supervision

I have supervised 2 M.Sc. Students, 20 Honours Projects and 17 Undergraduate Research Projects (UROPS). One later received a Ph.D. in mathematics from the University of Illinois, Urbana-Champaign, and one later received a Ph.D. in astrophysics at the University of Colorado, Boulder. He is currently a Postdoc at the Institute of Advanced Study, Princeton. Many of them have gone on to receive Master's degrees.

- Supervisor of Master's theses.
  1. CHIA Wan Ting, The Inverse Problem in Perspective, 2006.
  2. Aditya LIVIANDI, Reconstruction of Vermeer's "The Music Lesson", 2008.
- Supervisor for honours theses (US: senior thesis).
  1. TONG Chiou Lian, The Classical Groups, 1991.
  2. KANG Mei Ling, Cayley Numbers and Projective Geometry, 1991.
  3. LIOW Yih Siang, Young Tableaux, 1992.
  4. ONG Bee Teng, Invariant Theory of  $GL(n)$ , 1992.

5. Angelina TEO Khor Ling, Canonical Forms of Matrices, 1993.
  6. HO Ngan Ping, Ideals, Varieties and Algorithms, 1994.
  7. KOH Suh Jiuan, Conjugate and Cut Loci, 1997.
  8. WONG Look Kwang, Algorithms in Invariant Theory, 1997.
  9. Muhammad FAHMY bin Babjee, Trigonometry of Complex Projective Space, 2000.
  10. Rachel LEE Tang Hwee, Calendars in Singapore, 2000.
  11. LEOW Choon Lian, Indian Calendars, 2001.
  12. WONG Lee Nah, Mathematics of the Longitude, 2001.
  13. SIU Mee Lin, Art Figures: An Exhibition at the Singapore Art Museum, 2002.
  14. TEO Shin Yeow, The Analemma for Latitudinally-challenged People, 2002.
  15. KAVITHA d/o Krishnan, Symmetry Classifications of Periodic Tilings: Escher's Drawings, 2003.
  16. NG Yoke Leng, The Sun in the Church, 2003.
  17. NG Lay Ling, Tilings and Patterns, 2004.
  18. THAM Peck Fun, Bisection of the Eccentricity, 2004.
  19. XIONG Dan, Geometry and the Imagination, 2004.
  20. LEE Suling, SIM Xiu Juan, YANG Yunhui, Measuring the Tropical Year in Chinese Astronomy, 2006.
- Supervisor for Undergraduate Research Opportunity Projects in Science.
    1. TENG Keat Huat and KUAN Shau Hong, The Chinese Calendar of the Later Han Period, 1999.
    2. NG Say Tiong, Guo Shou Jing and the Chinese Calendar, 2001.
    3. Daphne CHIA, Indian Calendars, Comparing the Surya Siddhanta and the Astronomical Ephemeris, 2001.
    4. Kevin HENG Ser Guan, The Mathematics of Astrology, Does House Division Make Sense?, 2001.
    5. LIEW Huay Ling and LIM Siew Yee, The Mathematics of Sundials, 2001.
    6. LEONG Wen Xin, Lunar Visibility and the Islamic Calendar, 2001.

7. NG Yoke Leng, *A Mathematical Supplement to The Sun in the Church, Cathedrals as Solar Observatories* by J.L. Heilbron, 2001.
  8. ZHANG Jieping, *Strings of Long Months and Short Months in the Chinese Calendar*, 2001.
  9. Kevin HENG Ser Guan, *Perspective in Painting and Projective Geometry*, 2001.
  10. KAVITHA d/o Krishnan, *Polyhedra in Art*, 2001.
  11. CHONG Woon Hui, *Polyhedra*, 2002.
  12. Ruth POH Kim Muay, *Symmetry groups in Arts and Architecture: Frieze Patterns on Ming Porcelains*, 2002.
  13. Akhil DOEGAR and Akshay PRASAD, *Indian Calendars*, 2002.
  14. Akshay REGULAGEDDA, *Indian Panchangs*, 2002.
  15. YEH Ka Kei, *Vermeer's Camera*, 2004.
  16. LU Tian Xin, *The Copernican Revolution and the Size of the Universe*, 2008.
  17. Madeleine CHEW Mei Ru and Christina LEE Yiwei, *The Length of Vermeer's Studio*, 2009
- Supervisor for Science Research Projects. A research project for junior college (US: high school) students.
    1. Veronica CHIN Hei Ting, *The Mathematics of the Chinese Calendar*, 1999.
    2. ZHENG Ser, *Quasi-Periodicity in Medieval and Islamic architecture and ornament*, 2008.
  - Supervisor for Ministry of Education's Gifted Education Programme's Mentorship Programme projects. A mentorship program for secondary school (US: middle school) students.
    1. AKMAL bin Abd. Rahman and AMIT Jain, *Astronomy and Calendars*, 1995.
    2. SHI Fangying, ZHANG Mengshi, *Enumerating  $9 \times 9$  Sudoku Grids*, 2008.

### **Development of Courses**

- Co-developed "A Brief History of Science" for the university's General Education Requirement, 2008.

- Developed “Mathematics In Art and Architecture” for the university’s General Education Requirement ([www.math.nus.edu.sg/aslaksen/teaching/math-art-arch.shtml](http://www.math.nus.edu.sg/aslaksen/teaching/math-art-arch.shtml)), 2002.
- Developed “Heavenly Mathematics & Cultural Astronomy” for the university’s General Education Requirement ([www.math.nus.edu.sg/aslaksen/teaching/heavenly.shtml](http://www.math.nus.edu.sg/aslaksen/teaching/heavenly.shtml)), 2001.
- Co-developed “Why Calculus” for the University Scholars Programme ([www.math.nus.edu.sg/aslaksen/teaching/calculus.shtml](http://www.math.nus.edu.sg/aslaksen/teaching/calculus.shtml)), 2001.
- Developed the mathematics part of the Science Foundation Module, 1999.
- Developed “Computer-based Calculus”, based on *Calculus&Mathematica*, 1996.

## **Teaching Administration**

### **University**

- NUS Teaching Academy Executive Committee, 2009.
- Founding Fellow of the NUS Teaching Academy, 2009.
- Steering Committee for proposed Liberal Arts College, 2008 to present.
- Centre for Development of Teaching and Learning (CDTL) Affiliate, 2003 to 2008.
- University Teaching Evaluation Committee, 2007.
- General Education Programme Committee, 2001 to 2002.

### **Faculty of Science**

- Integrated Science Programme Committee, 2008 to present.
- Coordinator for joint M.Sc. in Science Communication with the Australian National University and the Science Centre Singapore, 2007 to present.
- Director of the Special Programme of Science, 2007 to present.
- Faculty of Science Curriculum Committee, 2007 to present.
- Freshmen Seminar Committee, 2005.

- Science Foundation Module Committee, 1994 to 2001.
- Teaching Methodology Committee, 1990 to 1992.

### **Department of Mathematics**

- Deputy Director of the Departmental Teaching Evaluation Committee, 2005 to 2006, member 2002 to present.
- Deputy Director (Administration) of the Departmental Graduate Programmes Committee, 2000 to 2004, member 1998 to 2004.
- Calculus Reform Committee, 1998 to 1999.
- Curriculum Committee, 1995 to 1997.

### **Other Teaching Related Activities**

#### **University**

- Study trip to the US with the Liberal Arts College Steering Committee, 2008.
- Demonstration of classroom teaching, Professional Development Programme (Teaching), Centre for Development of Teaching and Learning, NUS, 2003, 2005 (twice), 2007 and 2008.
- Workshop Session on Micro-Teaching, Training Programme for Teaching Assistants, Centre for Development of Teaching and Learning, NUS, 2003, 2007 (twice) and 2008.
- Outstanding Educator Award Public Lecture Series, 2005.
- Lecture on “Design and Geometry” in the course “Design Thinking” organized by Ang Yian San in the School of Design and Environment, 2001 and 2002.

#### **Faculty of Science**

- Study trip to the US with the Integrated Science Programme Committee, 2009.
- Lecture at the NUS Science Faculty Teaching Workshop, 2005 and 2007.

**Department of Mathematics**

- Speaker, Teaching & Learning Seminar, 2000, 2001 and 2002.
- Conducted the Departmental Graduate Tutor Training Programme, 1999 to 2000.

**University of California, Berkeley**

- Instructor in Teaching Assistant Training Workshop at University of California, Berkeley, 1984 to 1988.

## **Outreach**

### **Outreach on TV and Radio**

I am frequently interviewed about astronomical and mathematical topics on NewsRadio 93.8, Gold 90.5 and Passion 99.5.

- Science Content Committee member for the TV quiz show “National Science Challenge”, MediaCorp Channel 5, 2008.
- Guest on Melanie Oliveiro’s show, NewsRadio 93.8, Singapore, 2007.
- Programme Committee member, coordinator of the mathematics section and judge for the TV quiz show “National Science Challenge”, MediaCorp Channel 5, Singapore, 2005
- Programme Committee member, coordinator of the mathematics section and judge for the TV quiz show “The Great Science Challenge”, MediaCorp Channel 5, Singapore, 2004.
- Interview about Mathematics and Arts on “Art Nation” on Arts Central TV channel, Singapore, 2003.
- Academic advisor and appearance on “Ancient Chinese Inventions” on The Discovery Channel, Singapore, 2003.
- Guest on Koh Joo Kim’s 1 1/2 hour live talk show “The Living Room” in conjunction with Chinese New Year, NewsRadio 93.8, Singapore, 2002.

### **Competitions**

- Chairman, Singapore Mathematical Olympiad Organizing Committee, 2003 to present.
- Judge for the Singapore Mathematical Society’s Secondary School Project Festival, 2001, 2002, 2003, 2006, 2007, 2008 and 2009.
- Judge for the Singapore Mathematical Society’s Essay Competition, 2009.
- Chief Judge for the Brand’s Sudoku Challenge 2008 Singapore Open and BRAND’S Sudoku Challenge 2008 Asia Pacific Open, a national and Asian competition with a \$10,000 top cash prize, 2008 and 2009.
- Chief Judge for the Brand’s Sudoku Challenge Singapore 2007, a national competition with a \$10,000 top cash prize, 2007.

- Created the puzzles for the first national Sudoku competition in Singapore, the Sudoku Super-Challenge 2006, jointly organized by the Singapore Mathematical Society and the People's Association, 2006.
- Organizer of the first Sudoku competition in Singapore at the National University of Singapore Mathematics Enrichment Camp, 2005.
- Grader, Bay Area Math Olympiad, USA, 2005.
- Programme Committee member, coordinator of the mathematics section and judge for the TV quiz show "National Science Challenge", MediaCorp Channel 5, Singapore, 2005.
- Programme Committee member, coordinator of the mathematics section and judge for the TV quiz show "The Great Science Challenge", MediaCorp Channel 5, Singapore, 2004.
- National University of Singapore representative in the Singapore Science and Engineering Fair Working Group, 2002 to 2004.
- Panel of Judges, CHAOS (Creative & Heuristic Applications of Science), competition for junior college students (US: high school), Singapore, 2003.
- Judge for the Singapore Science and Engineering Fair, 2003 and 2004.
- Selection Panel for the ICAAS (Imperial College Alumni Association of Singapore) Outstanding Junior College (US: high school) Science Student Award, Singapore, 2002.
- Instructor in the training camp for the Singapore team for the International Mathematical Olympiad, 1991.

### **Science Centre Singapore**

- Mathematics Exhibition Advisory Committee, 2008.
- Lecture on "Heavenly Mathematics: Chinese Armillary Spheres", 2007.
- Lecture on "The Mathematics of the Chinese Calendar", 2000.

### **Museums**

- Lecture on "Heavenly Mathematics: Chinese Armillary Spheres" at the Singapore Science Centre, 2007.

- Lecture on “Symmetry in Art: The Mathematics of Ceramics” at the Asian Civilisations Museum, Armenian Street, 2002.
- Lecture for the guides at the Singapore Art Museum in conjunction with the exhibition “Art Figures: Mathematics in Art”, 2002.
- Academic consultant for the exhibition “Art Figures, Mathematics in Arts” at the Singapore Art Museum, 2002.
- Lecture on “The Mathematics of the Public Holidays of Singapore” for Secondary School students at the Asian Civilisations Museum, 2000.
- Lecture on “The Mathematics of the Chinese Calendar” at the Singapore Science Centre, 2000.
- Series of three lectures at the Asian Civilisations Museum in conjunction with the exhibition “The Dating Game - Calendars and Time in Asia”, 2000.
- Series of two lectures for the guides at the Asian Civilisations Museum in conjunction with the exhibition “The Dating Game - Calendars and Time in Asia”, 1999.
- " Academic consultant for the exhibition “The Dating Game - Calendars and Time in Asia” at The Asian Civilisations Museum, 2000.

### **Singapore Mathematical Society**

- Vice-President of the Singapore Mathematical Society, 2009.
- Chairman, Singapore Mathematical Olympiad Organizing Committee, 2003 to present.
- Judge for the Singapore Mathematical Society’s Secondary School Project Festival, 2001, 2002, 2003, 2006, 2007, 2008 and 2009.
- Coordinator of the Singapore Mathematical Society-Royal Institution Masterclasses, 2007 to present.
- Assistant Editor of the Singapore Mathematical Society, 2005.
- Assistant Secretary of the Singapore Mathematical Society, 2003 to 2004 and 2006 to 2008.

- Representative to the Board Meeting of the International Council for Industrial and Applied Mathematics, Zürich, 2004.
- Lecture to the Singapore Mathematical Society, NUS, 2001, 2002 and 2003.

### **The Astronomical Society of Singapore**

- Lecture to the Astronomical Society of Singapore, 2001 and 2002.

### **A\*STAR**

- NUS representative on the Science.02 Organizing Committee, 2002.

### **NUS High School of Mathematics and Science**

- Assembly talk, 2005, 2008 (twice).
- Advisor for student project, 2008.
- NUS High School of Math and Science, Curriculum Advisory Committee, 2005.

### **Gifted Education Programme**

- Gifted Education Branch Primary Mathematics Masterclass, 2008 and 2009.
- Seminar for Gifted Education Programme Primary Science teachers, 2003.
- Lecture at the Gifted Education Programme Mathematics Seminar, 2003.
- Workshops for the Gifted Education Programme Mathematics Enrichment Camp, 2001, 2002, 2003, 2006, 2007 and 2008.
- Mentor in the Gifted Education Programme Mentorship Programme, 1993.
- Lectures in the Gifted Education Programme Science Camp, 1991, 1993 and 1994.

### **School Organizations**

- Academic advisor to schools in West 1 Cluster, 2003 to 2004.

### **Lectures to the General Public and at Special Events for Students**

- Lectures on “The Mathematics of the Chinese, Indian, Islamic and Gregorian Calendars”, “The Mathematics of the Public Holidays of Singapore”, “When is Chinese New Year?” or “The Mathematics of the Chinese Calendar”:

  - RI-HCI Astrigue 2009, organized by the Raffles Institution and Hwa Chong Institution Astronomy Clubs, 2009.
  - NUS Business Incubation of Global Organisations (BINGO), 2007.
  - Sunburst Youth Camp, Singapore Technologies Endowment Programme, 2005.
  - Science.05, a month of Science, Technology and Biomedicine, 2005.
  - National University of Singapore Mathematics Society, 2005.
  - Outstanding Educator Award Public Lecture Series, NUS, 2005.
  - Bay Area Mathematics Adventure, [www.mathcs.sjsu.edu/faculty/dfhayes/bama.html](http://www.mathcs.sjsu.edu/faculty/dfhayes/bama.html), San Jose State University, USA, 2005.
  - Singapore Malaysia Students’ Association, University of California, Berkeley, USA, 2005.
  - Lodestar Dinner, International House, Berkeley, USA, 2005.
  - Berkeley Math Circle, University of California, Berkeley, USA, 2005.
  - Evening lecture, Harvey Mudd College, USA, 2004.
  - Winkelmann Mathematics and Society Lecture Series, Macalester College, USA, 2004. (An annual lecture series in mathematics, past speakers include Herb Wilf, Gilbert Strang, and Tom Banchoff.)
  - All Secondary Schools Mathematics Competition, National Junior College, 2003 and 2007.
  - Oslo katedralskole, Oslo, Norway, 2003. This lecture at my old high school was part of the activities surrounding the first Abel Prize in mathematics. Niels Henrik Abel was a student at this school, which celebrated its 850th anniversary a few months earlier.

- National University of Singapore Astronomical Society, 2002.
- National Library, Ngee Ann City Shopping Centre, 2001 and 2002.
- Science Focus, National University of Singapore, 2001 and 2006.
- Singapore Mathematical Society, 2001.
- Singapore International Math Olympiad Training Camp, 2001.
- Astronomical Society of Singapore, 2001.
- Gifted Education Programme Mathematics Enrichment Camp, 2001 and 2002.
- Annual General Meeting of the Norwegian Business Association (Singapore), 2001.
- The Culture Society, 2001.
- Asian Civilisations Museum, 2000.
- National Science and Technology Board, 2000.
- Lee Kong Chian Art Museum, 2000.
- Science Millennium Lecture, National University of Singapore, 2000.
- Singapore Science Centre, 2000.
- National University of Singapore Science and Technology Camp, 1999 and 2000.
- Lectures on “Observing the Sun and the Moon from Different Parts of the World” or “When Does the Sun Rise in Singapore and What is ‘Wrong’ with the Singapore Flag?”:
  - San Jose Math Circle, San Jose State University, USA, 2005.
  - Berkeley Math Circle, University of California, Berkeley, USA, 2004.
  - Open House, Department of Mathematics, National University of Singapore, 2003.
  - Singapore Mathematical Society Annual Prize Presentation Ceremony, Chinese High School, 2003.
- Lectures on “Symmetry in Art and Architecture”, “The Mathematics of Symmetry: From Wallpaper to Islamic Art” or “The Mathematics of Ceramics”:
  - Open House, Department of Mathematics, National University of Singapore, 2003.

- Singapore Mathematical Society, 2003.
  - National University of Singapore Museums, 2002.
  - Asian Civilisations Museum, 2002.
  - Gifted Education Programme Mathematics Enrichment Camp, 2001.
- Lecture on “The Beauty of Polyhedra”:
  - Gifted Education Branch Primary Mathematics Masterclass, 2008.
  - Gifted Education Programme Mathematics Seminar, 2003.
  - Gifted Education Programme Mathematics Enrichment Camp, 2003.
  - Singapore Mathematical Society, 2002.
- Lecture on “The Mathematics of Sudoku”:
  - Singapore Mathematical Society-Royal Institution Masterclasses, 2007.
  - Gifted Education Programme Mathematics Enrichment Camp, 2006, 2007 and 2008.
  - People’s Association, 2006.
  - Open House, Department of Mathematics, National University of Singapore, 2006.
  - Mathematics Enrichment Camp, National University of Singapore, 2005, 2006, 2007, 2008 and 2009.
- National University of Singapore Open House, Faculty Lecture, 2003.
- Lecture for the guides at the Singapore Art Museum in conjunction with the exhibition “Art Figures: Mathematics in Art”, 2002.
- Series of three public lectures, at the Asian Civilisations Museum in conjunction with the exhibition “The Dating Game — Calendars and Time in Asia”, 2000.
- Series of two lectures for the guides at the Asian Civilisations Museum in conjunction with the exhibition “The Dating Game — Calendars and Time in Asia”, 1999.
- Lectures in the Gifted Education Programme Science Camp, 1991, 1993 and 1994.

### **Lectures, Seminars and Workshops for Teachers**

- Keynote speaker at Mathematics Symposium at Centre of Excellence at Zone East, 2008.
- Lecture at Knowledge and Inquiry Symposium on New Technologies and Knowledge Construction, Curriculum Planning and Development Division, Ministry of Education, Singapore, 2007.
- Lecture at in-service course on the history of mathematics for high school teachers, University of Oslo, Norway, 2006.
- Workshop on “Proposing, Supervising and Assessing Student Research Projects in Mathematics”, Raffles Girls’ School (Secondary), 2005.
- Lecture on “Proposing, Supervising and Assessing Student Research”, Raffles Institution, 2004.
- Lecture on “The Mathematics of the Public Holidays of Singapore” at the Mathematics Workshop for Primary School Teachers in conjunction with the Singapore Mathematical Olympiad for Primary Schools, Chinese High School, 2004.
- Lecture on “When Does the Sun Rise in Singapore and What is ‘Wrong’ with the Singapore Flag?” at the W1 Cluster Schools Good Practices Day for Mathematics Teachers, Anglo-Chinese Junior College, 2003.
- Seminar for Gifted Education Programme Primary Science teachers on “The Mathematics of the Public Holidays of Singapore” and “When Does the Sun Rise in Singapore and What is ‘Wrong’ with the Singapore Flag?”, Anglo-Chinese School (Primary), 2003.
- Lecture on “The Mathematics of the Public Holidays of Singapore”, West Zone Maths Committee, Fajar Secondary School, Singapore, 2002.

### **Lectures at Schools**

In Singapore, junior college is grade 11 to 12 and secondary school is grade 7 to 10. High school is an unofficial name, which usually means 7 to 10, but can also mean 7 to 12. A \* marks that the school instead visited the NUS. I’ve visited 14 of the 23 pre-university centers in Singapore.

- Anderson Junior College, 2002 and 2003.

- Anglo-Chinese School (Independent), 2007.
- Catholic Junior College, 2004.
- Dunman High School, 2002 and 2006.
- Hwa Chong Institution (The Chinese High School/Hwa Chong Junior College), 2000, 2001, 2002, 2003 (twice) and 2008 (three times).
- National Junior College, 2003 and 2007.
- NUS High School of Math and Science, 2005 and 2008 (twice).
- Pioneer Junior College, 2001\*.
- School of the Arts, 2008.
- St. Andrew's Junior College, 2002, 2003 and 2007.
- Tampines Junior College, 2006\*.
- Temasek Junior College, 2001\* and 2008.
- Victoria Junior College, 2002.
- Yishun Junior College, 2002.
- Fuchun Secondary School, 2007\*.
- Nan Hua Secondary School, 2002.
- Outram Secondary School, 2002 (twice).
- Paya Lebar Methodist Girls' School (Secondary), 2007\*.
- Raffles Girls' School (Secondary), 2003 (twice) and 2007.
- Singapore Chinese Girls' School, Singapore, 2004 (twice).

## **Administration**

### **University**

- Committees
  - NUS Teaching Academy Executive Committee, 2009.
  - Founding Fellow of the NUS Teaching Academy, 2009.
  - Steering Committee for proposed Liberal Arts College, 2008 to present.
  - University Teaching Evaluation Committee, 2007.
  - Centre for Development of Teaching and Learning Affiliate (CDTL), 2003 to 2008.
  - General Education Programme Committee, 2001 to 2002.
  
- Additional service to the university
  - Study trip to the US with the Liberal Arts College Steering Committee, 2008.
  - Outstanding Educator Award Public Lecture Series, 2005.
  - Convener for a student workshop on “Global Education and I — Youth Perspectives” at the NUS Centennial Global Education Convention 2005, National University of Singapore, 2005.
  - Demonstration of classroom teaching, Professional Development Programme (Teaching), Centre for Development of Teaching and Learning, NUS, 2003, 2005 (twice), 2007 and 2008.
  - Workshop Session on Micro-Teaching, Training Programme for Teaching Assistants, Centre for Development of Teaching and Learning, NUS, 2003, 2007 (twice) and 2008.
  - Lecture on “Get a Life! Study Science!” at the NUS Open House 2003, Faculty Talks, 2003.
  - Lecture on “Chinese Astronomy for Historians” at the Department of History, 2002.
  - Lecture on “Symmetry in Art. What Does Wallpaper, Islamic Art and Batik have in Common?” at the NUS Museums, 2002.
  - Lecture on “The History of the Chinese Calendar” at the Lee Kong Chian Art Museum at the NUS, 2000.

## Faculty of Science

- Director and Coordinator
  - Director of the Special Programme of Science, 2007 to present.
  - Coordinator for joint M.Sc. in Science Communication with the Australian National University and the Science Centre Singapore, 2007 to present.
- Committees
  - Integrated Science Programme Committee, 2008 to present.
  - Curriculum Committee, 2007 to present.
  - Freshmen Seminar Committee, 2005.
  - Donated Scholarships and Bursaries Selection Committee, 2003 to 2004.
  - Outreach Committee, 2002 to 2004.
  - Science Foundation Module Committee, 1994 to 2001.
  - Information Technology Committee, 1992 to 1994.
  - Teaching Methodology Committee, 1990 to 1992.
- NUS High School of Mathematics and Science
  - Assembly talk, 2005, 2008 (twice).
  - Advisor for student project, 2008.
  - NUS High School of Math and Science, Curriculum Advisory Committee, 2005.
- Additional service to the Faculty of Science
  - Study trip to the US with the Integrated Science Programme Committee, 2009.
  - Faculty Advisor to the NUS Tabletop Gaming Interest Group, 2006 to present.
  - Faculty Advisor to the NUS Astronomical Society, 2002 to present.
  - Lecture at the NUS Science Faculty Teaching Workshop, 2005 and 2007.
  - Lecture for Science Focus, 2001.

- Lecture at the NUS Science and Technology Camp, 1999 and 2000.
- Lecture in the NUS Science Millennium Lecture Series, 2000.
- Trip to Shanghai in 1999 to interview applicants to the Graduate School of Science.

## **Department of Mathematics**

- Directorships
  - Deputy Director of the Departmental Teaching Evaluation Committee, 2005 to 2006, member 2002 to present.
  - Deputy Director, External Relations Committee, 2000 to 2006, member 2000 to present.
  - Deputy Director (Administration) of the Graduate Programmes Committee, 2000 to 2004, member 1998 to 2004.
- Committees
  - Calculus Reform Committee, 1998 to 1999.
  - Curriculum Committee, 1995 to 1997.
  - Information Technology Committee, 1992 to 2004.
  - Sports and Recreation Committee, 1989 to 1997.
- Additional service to the Department
  - Speaker, Teaching & Learning Seminar, 2000, 2001 and 2002.
  - Conducted the Departmental Graduate Tutor Training Programme, 1999 to 2000.
  - Academic Advisor, 1995 to 1997.
  - Webmaster, 1994 to 1997. We created a departmental web page in February 1994, long before most math departments had a web presence.