

PERSONAL RECORD

DUDLEY STARK

Academic Qualifications

- 1994 Ph.D. in mathematics, University of Southern California.
- 1985 M.A. in mathematics, University of California, Los Angeles.
- 1983 B.S. in physics, B.A. in mathematics, University of Rochester.

Membership of Professional Bodies

- 2006 – present London Mathematical Society.
- 2003 – present American Mathematical Society.
- 1992 – 2005 Institute of Mathematical Statistics.

Appointments Held

- 10/05 – present Reader, Queen Mary, University of London.
- 09/10 – 09/11 Secondment, University of Bristol.
- 01/09 – 06/09 Visiting Scholar, Green-Templeton College, University of Oxford.
- 10/02 – 09/05 Lecturer B, Queen Mary, University of London.
- 02/02 – 10/02 Lecturer A, Queen Mary, University of London.
- 01/00 – 01/02 Research Lecturer, Queen Mary, University of London.
- 11/97 – 12/99 Postdoctoral Fellow, BRIMS, Hewlett Packard, Bristol, England.
- 06/96 – 11/97 Research Fellow, University of Melbourne, Australia.
- 09/94 – 06/96 Postdoctoral Assistant, University of Zürich, Switzerland.
- 09/89 – 06/94 Teaching Assistant, University of Southern California.
- 09/83 – 06/85 Teaching Assistant, University of California, Los Angeles.

Non-academic Employment:

- 09/85 – 08/89 Member of Technical Staff Hughes Aircraft Company
El Segundo, California.

Designed and coded the data analysis portion of the radar test software for the Magellan Venus radar mapping mission. Responsible for software quality assurance.

TEACHING

Departmental Teaching Duties

<u>SESSION</u>	<u>COURSES TAUGHT</u>
2011–2012	MTH6126 Metric Spaces MTHM012 Topics in Probability and Stochastic Processes
2009–2010	SEJ026 Essential Foundation Mathematics MTH 6121 Introduction to Mathematical Finance
2008–2009	MTH 6121 Introduction to Mathematical Finance
2007–2008	MAS 231 Geometry II MAS 343 Introduction to Mathematical Finance
2006–2007	MAS 231 Geometry II MAS 343 Introduction to Mathematical Finance MTHM012 Topics in Probability and Stochastic Processes
2005–2006	MAS 228 Probability II MAS 231 Geometry II MTHM012 Topics in Probability and Stochastic Processes
2004–2005	MAS 228 Probability II MTHM012 Topics in Probability and Stochastic Processes
2003–2004	MAS 228 Probability II MTHM012 Topics in Probability and Stochastic Processes MTHM017 Measure Theory and Probability
2002–2003	MAS 223 Complexity and Optimisation in Operational Research (taught jointly with Dr. Peter Dobcsanyi) MAS 307 Applied Stochastic Processes MTHM012 Topics in Probability and Stochastic Processes
2001–2002	MAS 223 Complexity and Optimisation in Operational Research (taught jointly with Professor Wilfrid Hodges) MAS 307 Applied Stochastic Processes MTHM012 Topics in Probability and Stochastic Processes MTHM017 Measure Theory and Probability
2000–2001	MAS 210 Graph Theory (taught jointly with Professor Wilfrid Hodges) MAS 307 Applied Stochastic Processes MTHM012 Topics in Probability and Stochastic Processes
<u>SESSION</u>	<u>EXERCISE CLASSES AND COMPUTER LABORATORIES</u>

2011–2012	MTH 4105	Introduction to Mathematical Computing
	MTH 6100	Actuarial Mathematics
2009–2010	MTH 6120	Further Topics in Mathematical Finance
2006–2007	MAS 108	Probability I
	MAS 114	Geometry I
2005–2006	MAS 101	Calculus I
2004–2005	MAS 224	Actuarial Mathematics
	MAS 101	Calculus I
2003–2004	MAS 232	Statistical Modelling I
	MAS 106	Matrices and Geometry
	MAS 108	Probability I
2002–2003	MAS 106	Matrices and Geometry
	MAS 108	Probability I
	MAS 109	Statistics I
	MAS 224	Actuarial Mathematics
2001–2002	MAS 106	Matrices and Geometry
	MAS 108	Probability I
	MAS 109	Statistics I
2000–2001	MAS 106	Matrices and Geometry
	MAS 108	Probability I
	MAS 109	Statistics I
	MAS 200	Actuarial Statistics
	MAS 210	Graph Theory
1999–2000	MAS 200	Actuarial Statistics

Supervision of Students:

- M.Sc. student supervised, Papageorgiou Ioannis, graduated with distinction, 2002. Project title: On a Theorem of Shift-Tightness.
- Senior Project supervised, Ryan Condron, graduated 2003. Project title: An Analysis Of Shuffling by Machine.
- M.Sc. student supervised, Luke Barrow, graduated 2006. Project title: Pricing Call Options.
- Ph.D. student co-supervision, Jan Frederik Forst (computer science), 2009. Project title: Probabilistic Information Retrieval.

RESEARCH AND SCHOLARSHIP

Publications and Preprints

1. Dudley Stark, First occurrence in pairs of long words: a Penney-ante conjecture of Pevzner. *Combinatorics, Probability & Computing*, **4**, 279–285 (1995).
2. Richard Arratia, Dudley Stark and Simon Tavaré. Total variation asymptotics for Poisson process approximations of logarithmic combinatorial assemblies. *Annals of Probability*, **23**, 1347–1388 (1995).
3. Boele Braaksma and Dudley Stark. A Darboux-type theorem for slowly varying functions. *Journal of Combinatorial Theory, Series A*, **77**, 51–66 (1997).
4. Dudley Stark. Explicit non-zero limits of total variation distance in independent Poisson approximations of logarithmic combinatorial assemblies. *Combinatorics, Probability & Computing*, **6**, 87–106, (1997).
5. Dudley Stark. Total variation asymptotics for independent process approximations of logarithmic multisets and selections. *Random Structures and Algorithms*, **11**, 51–80 (1997).
6. Dudley Stark and Nicholas Wormald. Asymptotic enumeration of convex polygons. *Journal of Combinatorial Theory, Series A*, **80**, 196–217 (1997).
7. Arnold Knopfmacher, Andrew Odlyzko, Boris Pittel, L. Bruce Richmond, Dudley Stark, George Szekeres and Nicholas Wormald. On set partitions with unequal parts. *Electronic Journal of Combinatorics*, **6** R2, 36 pp. (1999).
8. Dudley Stark. Total variation asymptotics for refined Poisson process approximations of logarithmic combinatorial assemblies. *Combinatorics, Probability & Computing*, **8**, 567–598 (1999).
9. Ayalvadi Ganesh, Ben Hambly, Neil O’Connell, Dudley Stark, and Paul Upton. Poissonian behavior of Ising spin systems in an external field. *Journal of Statistical Physics*, **99**, 613–626 (2000).

10. Ben Hambly, Peter Keevash, Neil O’Connell and Dudley Stark. The characteristic polynomial of a random permutation matrix. *Stochastic Processes and Applications*, **90**, 335–346 (2000).
11. Dudley Stark. Compound Poisson approximations of subgraph counts in random graphs. *Random Structures & Algorithms*, **18**, 39–60 (2001).
12. Ayalvadi Ganesh, Neil O’Connell and Dudley Stark. Information loss in riffle shuffling. *Combinatorics, Probability & Computing*, **11**, 79–95 (2002).
13. Peter Cameron and Dudley Stark. A prolific construction of strongly regular graphs with the n -e.c. property. *Electronic Journal of Combinatorics*, **9** R31, 12 pp. (2002).
14. Dudley Stark. Information loss in top to random shuffling. *Combinatorics, Probability & Computing*, **11**, 607–627 (2002).
15. Dudley Stark. The vertex degree distribution of random intersection graphs. *Random Structures & Algorithms*, **24**, 249–258 (2004).
16. Dudley Stark. Convergence in distribution for subset counts between random sets. *Electronic Journal of Combinatorics*, **11** R59, 9pp. (2004).
17. Boris Granovsky and Dudley Stark. Asymptotic enumeration and logical limit laws for expansive multisets. *Journal of the London Mathematical Society* (2), **73**, 252–272 (2006).
18. Dudley Stark. Logical limit laws for logarithmic structures. *Mathematical Proceedings of the Cambridge Philosophical Society*, **140**, 537–544 (2006).
19. Peter Cameron, Thomas Prellberg and Dudley Stark. Asymptotic enumeration of incidence matrices. *Journal of Physics: Conference Series* **42**, 59–70 (2006).
20. Jerzy Jaworski, Michał Karoński and Dudley Stark. The degree of a typical vertex in generalized random intersection graph models, *Discrete Mathematics*, **306**, 2152–2165 (2006).

21. Peter Cameron, Thomas Prellberg and Dudley Stark. Asymptotics for incidence matrix classes. *Electronic Journal of Combinatorics*, **13** R85, 19pp. (2006).
22. Jerzy Jaworski and Dudley Stark. The vertex degree distribution of passive random intersection graph models. *Combinatorics, Probability & Computing* **17**, 549–558 (2008).
23. Boris Granovsky, Dudley Stark and Michael Erlihson. Meinardus' theorem on weighted partitions: extensions and a probabilistic proof. *Advances in Applied Mathematics* **41**, 307–328 (2008).
24. Dudley Stark, Peak production in an oil depletion model with triangular field profiles. *Journal of Interdisciplinary Mathematics* **11**, 695–706 (2008).
25. Dudley Stark. The limit of the statistic R/P in models of oil discovery and production. *Applied Mathematical Sciences* **3**, 2703–2706 (2009).
26. Peter Cameron, Thomas Prellberg and Dudley Stark. Asymptotic enumeration of 2-covers and line graphs. *Discrete Mathematics* **310**, 230–240 (2010).
27. Peter Cameron, Mihyun Kang and Dudley Stark. Random preorders and alignments. *Discrete Mathematics* **310**, 591–605 (2010).
28. Katarzyna Rybarczyk and Dudley Stark. Poisson approximation of the number of cliques in random intersection graphs. *Journal of Applied Probability* **47**, 826–840 (2010).
29. Dudley Stark. Oil production models with normal rate curves. *Probability in the Engineering and Informational Sciences* **25**, 205–217 (2011).
30. Dudley Stark. The edge correlation of random forests. *Annals of Combinatorics* **15**, 529–539 (2011).
31. Boris Granovsky and Dudley Stark. A Meinardus theorem with multiple singularities. Accepted to appear in *Communications in Mathematical Physics*.

32. John Baptist Gauci, Anthony J.W. Hilton and Dudley Stark. Wiggles and finitely discontinuous k -to-1 functions between graphs. Submitted.
33. Dudley Stark. The asymptotic number of spanning forests of complete bipartite graphs. Submitted.
34. Dudley Stark and Nicholas Wormald. Distribution of the number of isomorphic copies of small subgraphs in random graphs. Preprint.
35. Richard Arratia and Dudley Stark. A total variation distance invariance principle for primes, permutations and Poisson-Dirichlet. Preprint.

Book Reviews

1. Dudley Stark, “Logarithmic Combinatorial Structures: A Probabilistic Approach by Richard Arratia, A. D. Barbour, and Simon Tavaré”. *London Mathematical Society Bulletin*, (2005), 157-159.

Research Funding Secured

- Grant of £760 awarded to attend the Workshop on Combinatorial and Computational Aspects of Statistical Physics/Random Graphs and Structures at the Isaac Newton Institute, Cambridge, September 2002.
- Royal Society Conference Grant of £815 awarded to attend IMS meeting in Barcelona, 2004.
- Royal Society Conference Grant of £506 awarded to attend Random Structures and Algorithms meeting in Poznan, 2005.

Service as Referee

I have served as referee for the following journals.

- Advances in Probability
- Algorithmica
- Annales de l’Institut Fourier
- Annals of Probability

- Bernoulli
- Combinatorics, Probability & Computing
- Contributions to Discrete Mathematics
- Discrete Mathematics
- Electronic Journal of Combinatorics
- Electronic Journal of Probability
- European Journal of Combinatorics
- Information Processing Letters
- Journal of Applied Probability
- Journal of Combinatorial Theory, Series A
- Journal of Combinatorial Theory, Series B
- Mathematical Biosciences
- Mathematical Proceedings of the Cambridge Philosophical Society
- Monatshefte für Mathematik
- Osaka Journal of Mathematics
- Random Structures & Algorithms
- SIAM Journal on Discrete Mathematics
- SODA 2011
- Statistics & Probability Letters
- Theoretical Computer Science

I reviewed a book proposal for Springer in 2007.

I reviewed a research proposal for the Dutch National Science Council in 2007.

National or International Standing

I have given presentations at these meetings and seminars.

- 26 November, 1997 Southwest Probability Seminar, BRIMS, Hewlett Packard Corporation. “A total variation distance invariance principle for primes, permutations and polynomials” (invited).
- August, 1997, IMS, Park City Utah. Special session on Random Combinatorial Structures. “A total variation distance invariance principle for primes, permutations and polynomials” (invited)
- 26 November, 1997 Southwest Probability Seminar, BRIMS, Hewlett Packard Corporation. “A total variation distance invariance principle for primes, permutations and polynomials” (invited).
- 17 February, 1998 University of Cambridge Statistical Laboratory Seminar. “A total variation distance invariance principle for primes, permutations and polynomials” (invited).
- 12 June, 1998 Department of Applied Mathematics, University of Zürich. “Subgraph counts in the random graph at threshold” (invited).
- 23 October, 1998, University of Bristol, Statistics and Probability Seminars. “Poisson approximation for mixing sequences” (invited).
- 16 February 1999, Universität Bielefeld, 5th Workshop on Probability Theory and Its Applications. “Compound Poisson approximation for subgraphs counts of random graphs”.
- 25th-27th January 1999, Department of Computer Science University of Liverpool, Phase Transition Phenomena in Combinatorial Problems, (Workshop). “Compound Poisson approximation for subgraphs counts of random graphs”.

- July 1999 17th British Combinatorial Conference University of Kent at Canterbury. “Distribution of small subgraph counts in a random graph”.
- July 2001, 18th British Combinatorial Conference University of Sussex, Brighton. “A Prolific Construction of Strongly Regular Graphs with the n -e.c. property”.
- August 2001, 10th International Conference on Random Structures and Algorithms, Poznan. “A Prolific Construction of Strongly Regular Graphs with the n -e.c. property”.
- 7th February 2002, University of Essex, Mathematics Seminar. “Information Loss in Top to Random Shuffling” (invited).
- 4th September 2002, Isaac Newton Institute, Workshop on Combinatorial and Computational Aspects of Statistical Physics/Random Graphs and Structures, “Information Loss in Top to Random Shuffling” (invited).
- 17th February 2003, Queen Mary, University of London, Anniversary Lecture. “Poisson approximation and card shuffling”. (invited)
- 8th April 2003, Adam Mickiewicz University Mathematics Seminar, “Poisson approximation and card shuffling”. (invited)
- 22nd May 2003, University of Cambridge Combinatorics Seminar, “A Prolific Construction of Strongly Regular Graphs with the n -e.c. property” (invited)
- 13th August 2003, 11th International Conference on Random Structures and Algorithms, Poznan, Poland. “The vertex degree distribution of random intersection graphs”.
- 1st March 2004, Pure Mathematics Seminar, Queen Mary University of London, “Probability and permutations”.
- 24th June 2004, XI-th International Summer Conference on Probability and Statistics, Sozopol, Bulgaria. “Asymptotic enumeration and logical limit laws for expansive multisets and selections” (invited).

- 28th July 2004, IMS/Bernoulli Society Meeting, Barcelona, “Asymptotic enumeration and logical limit laws for expansive multisets and selections”.
- January 27, 2005, Pure Mathematics Seminar, University of Exeter, “Random Preorders” (invited).
- March 3, 2005, CDAM Seminar on Discrete and Applicable Mathematics, London School of Economics, “Random Preorders” (invited).
- July 14, 2005, 20th British Combinatorial Conference, University of Durham. “Random Preorders”.
- 4th August 2005, 12th International Conference on Random Structures and Algorithms, Poznan, Poland. “Random Preorders”.
- 21st December 2005, Combinatorics Seminar, Technion - Israel Institute of Technology, Haifa, Israel. “Vertex degree in random intersection graphs” (invited).
- 25th December 2005, Combinatorics Seminar, Tel Aviv University, Israel. “Vertex degree in random intersection graphs” (invited).
- 21 January 2005, Combinatorics Worskhop, Queen Mary, University of London. “Random Preorders”.
- 28th April 2006, Research Seminar, Algorithms and Complexity Group, Institute of Computer Science, Humboldt University, Germany. “Vertex degree in random intersection graphs” (invited).
- 11th July 2006, Sixth Czech-Slovak International Symposium on Combinatorics, Graph Theory, Algorithms and Applications, Prague, Czech Republic. “Random preorders and alignments”.
- 23rd March 2007, Combinatorics Worskhop, Queen Mary, University of London. “Asymptotic enumeration of 2-covers and line graphs”.
- 20th June 2007, Seminar in Enumerative Combinatorics and Random Structures, Centre de Recerca Matemàtica, Barcelona, “Vertex degree in random intersection graphs” (invited).

- 28th June 2007, Conference on Enumeration and Probabilistic Methods in Combinatorics, Centre de Recerca Matemàtica, Barcelona, “Asymptotic enumeration of line graphs and 2-covers”.
- 13th July 2007, 21st British Combinatorial Conference, University of Reading, “Asymptotic enumeration of line graphs and 2-covers”.
- 25th June 2008, Workshop on Combinatorial and Probabilistic Inequalities, Isaac Newton Insitute, Cambridge, “Poisson approximation of the number of cliques in random intersection graphs”.
- 29th January 2009, Networks Group Seminar, Queen Mary, University of London, “Coupling and the M/M/1 queue”.
- 13th February 2009, Combinatorics Worshop, Queen Mary, University of London, “The edge correlation of random forests”.
- 27th February 2009, Combinatorial Theory Seminar, University of Oxford, “The edge correlation of random forests” (invited).
- 24th March 2009, Pure Mathematics Seminar, Royal Holloway, University of London, “Poisson approximation of the number of cliques in random intersection graphs” (invited).
- 7th August 2009, 14th International Conference on Random Structures and Algorithms, Poznan, Poland. “The edge correlation of random forests”.
- 5th November 2010, Probability Seminar, University of Bristol, “Meinardus’ theorem on weighted partitions: extensions and a probabilistic proof”.
- 1st April 2011, Combinatorics Worshop, Queen Mary, University of London, “The asymptotic number of spanning forests of complete bipartite graphs”.
- 7th July 2011, 23rd British Combinatorial Conference, University of Exeter, “The asymptotic number of spanning forests of complete bipartite graphs”.

Professional Activities

- Member of the organizing committee of the ICCMCC3 mathematics conference held at Melbourne University, 1996.
- Organizer of the Workshop on Probability and Combinatorics held at Hewlett Packard Laboratories, Bristol, 1999.
- I was a reviewer for Mathematical Reviews, 2000–2004.
- External Assessor for James Clapperton, University of Derby, 2008.
- Internal Assessor for Victor Falgas-Ravry, 2009, 2011.
- External Examiner for Christopher Melsa, University of Essex, 2010.
- Talk given for the Mathematics with Business or Finance: University of London Taster Course, 8th July 2010.
- Peer-reviewer for South Africa's National Research Foundation, 2011.
- Second Supervisor for Irina Galstian, 2011.

ADMINISTRATION

Departmental Responsibilities

- January 2000 – February 2002
Responsible for distribution and collection of questionnaires.
- August 2001 – September 2001
Assisted with clearing for undergraduate students.
- February 2002 – September 2005
Assistant Secretary to the Mathematics Subject Examination Board.
Responsible for checking that students satisfied degree title requirements.
- September 2007 – September 2008
Pastoral Tutor, Member of the Examination Team.
- September 2009 – September 2010
Member of the Examination Team, SEFP Advising.
- September 2011 – September 2012
Admissions Selector.
- I have done my share of personal advising and Open Day work.

Statements on Teaching (along with Teaching Self-Assessment), Research and Administration are obtainable upon request.