Fraser Alexander Daly

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Employment

2021- Associate Professor in Actuarial Mathematics and Statistics, Heriot-Watt University.

2013-2021 Assistant Professor in Actuarial Mathematics and Statistics, Heriot-Watt University.

2010-2013 Heilbronn Research Fellow, School of Mathematics, University of Bristol.

2008-2009 Postdoctoral position, Institut für Mathematik, Universität Zürich.

Education

2005-2008 PhD
School of Mathematical Sciences, University of Nottingham
Thesis title: New bounds on Stein-type operators, with applications
Supervisor: Dr S. Utev

2001-2005 MMath (Hons) Mathematics, First Class
School of Mathematical Sciences, University of Nottingham
Achieved a degree average of 89%, prizes and letters of commendation for excellent examination results in 2002-03 and 2003-04, and the Frank Underwood Prize for the Most Outstanding Student in the School of Mathematical Sciences for 2004-05.

Academic publications

L. Yu, F. Daly and O. Johnson (2022). A negative binomial approximation in group testing. *Probability in the Engineering and Informational Sciences*, to appear.

A. Haig, F. Daly and S. Shneer (2022). Asymptotics for cliques in scale-free random graphs. *Journal of Statistical Physics* 189 (2): 19.

F. Daly (2022). Gamma, Gaussian and Poisson approximations for random sums using size-biased and generalized zero-biased couplings. *Scandinavian Actuarial Journal* 2022 (6): 471-487.

F. Daly, F. Ghaderinezhad, C. Ley and Y. Swan (2021). Simple variance bounds from Stein's method. *ALEA Latin American Journal of Probability and Mathematical Statistics* 18 (2): 1845-1858.

F. Daly (2019). On strong stationary times and approximation of Markov chain hitting times by geometric sums. *Statistics and Probability Letters* 150: 74-80.

F. Daly and O. Johnson (2018). Relaxation of monotone coupling conditions: Poisson approximation and beyond. *Journal of Applied Probability* 55 (3): 742-759.

F. Daly (2017). On magic factors in Stein's method for compound Poisson approximation. *Electronic Communications in Probability* 22 (67): 1-10.

F. Daly (2016). Compound geometric approximation under a failure rate constraint. *Journal of Applied Probability* 53(3): 700-714.

F. Daly and R. Gaunt (2016). The Conway-Maxwell-Poisson distribution: distributional theory and approximation. *ALEA Latin American Journal of Probability and Statistics* 13(2): 635-658.

F. Daly (2016). Negative dependence and stochastic orderings. *ESAIM: Probability and Statistics* 20: 45-65.

F. Daly (2013). Compound Poisson approximation with association or negative association via Stein's method. *Electronic Communications in Probability* 18 (30): 1-12.

F. Daly and O. Johnson (2013). Bounds on the Poincaré constant under negative dependence. *Statistics and Probability Letters* 83 (2): 511-518.

F. Daly, C. Lefèvre and S. Utev (2012). Stein's method and stochastic orderings. *Advances in Applied Probability* 44 (2): 343-372.

F. Daly (2011). On Stein's method, smoothing estimates in total variation distance and mixture distributions. *Journal of Statistical Planning and Inference* 141 (7): 2228-2237.

F. Daly (2010). Stein's method for compound geometric approximation. *Journal of Applied Probability* 47 (1): 146-156

F. Daly (2008). Upper bounds for Stein-type operators. *Electronic Journal of Probability* 13 (20): 566-587.

Selected recent presentations

Probability seminar, University of Liverpool, UK (online, October 2022).

Invited session talk, *CMStatistics 2021*, London UK (online, December 2021).

Probability seminar, University of Durham, UK (October 2021).

Invited talk, *Applied Probability Workshop*, Novosibirsk State University, Russia (online, August 2020).

Probability seminar, University of Leicester, UK (October 2019).

Probability seminar, University of Buenos Aires, Argentina (November 2018).

Probability seminar, Nankai University, China (October 2018).

Invited talk, *Stochastic Models VI,* Bedlewo, Poland (June 2018).

Invited talk, *LMS-EPSRC Durham Symposium on Markov Processes, Mixing Times and Cutoff*, University of Durham, UK (July 2017).

Invited talk, *Workshop on New Directions in Stein's Method*, National University of Singapore, Singapore (May 2015).

Selected recent conference and workshop organization

Co-organizer of *Probability in the North-East* workshops, Heriot-Watt University (June 2015, September 2017, January 2020 and February 2023).

Lead organizer of *LMS Invited Lectures 2019*, Edinburgh (May 2019).

Co-organizer of RSS-sponsored workshop on *Stochastic Processes in Finance and Beyond*, Edinburgh (May 2019).

Co-organizer of *Stochastic Networks 2018*, Edinburgh (June 2018).

Lead organizer of *Summer School on Random Structures and Processes*, Edinburgh (June 2018).

Co-organizer of RSS-sponsored workshop on *Probability in Actuarial Science*, London (November 2017).

Co-organizer of industrial engagement session of *LMS-EPSRC Durham Symposium on Markov Processes, Mixing Times and Cutoff*, University of Durham (July 2017).

Teaching experience

Undergraduate and graduate courses in probability and statistics, including course leader for courses in time series analysis and statistical modelling (for undergraduate and postgraduate students in actuarial science and in mathematics), and probability (for Scottish PhD students in mathematics).

Supervision and examination of research students

Supervision of one PhD student to completion (Bemsibom Toh, Heriot-Watt University, graduated October 2020). Currently supervising four PhD students at Heriot-Watt University. Served as internal examiner for three PhD students at Heriot-Watt University (2016, 2019 and 2020) and external examiner for a PhD student at the University of Leicester (2019).

Selected other professional activities and service

2022-present Director, Scottish Mathematical Sciences Training Centre (taught course centre in the mathematical sciences run by a consortium of eight Scottish universities).

2020-2022 Programme director of MSc Financial Mathematics, Heriot-Watt University (joint programme with the University of Edinburgh).

2019 Guest Editor for special issue of *Queuing Systems: Theory and Applications*.

2017-present Member of the committee of the Applied Probability section of the Royal Statistical Society, including Meetings Secretary 2019-2021 and Vice Chair 2022-present.

2016-present Undergraduate admissions tutor for Actuarial Mathematics and Statistics, Heriot-Watt University.

Referee for leading applied probability journals, including *Annals of Applied Probability*, *Bernoulli*, *Journal of Applied Probability*, *Journal of Theoretical Probability*, *ESAIM*, *ALEA*, *Electronic Communications in Probability*, *QUESTA*, and *Stochastic Processes and Their Applications*.