

Program (current at 27 June 2001)

This version of the program was issued after the printing of the abstract booklet and contains a number of changes caused by the late withdrawal of several intended participants.

See page 14 for the names of session chairs.

28th Conference on Stochastic Processes
and their Applications

under the auspices of the Bernoulli Society for
Mathematical Statistics and Probability.

The University of Melbourne (Parkville campus),
Victoria, Australia, 1–5 July, 2002.

Organizers and Sponsors

The Scientific Programme Committee for the conference consists of T. Brown (chairman), S. Asmussen, P.J. Brockwell, L.H.Y. Chen, F. Den Hollander, C.C. Heyde, G.R. Grimmett, I.A. Ibragimov, and O. Zeitouni.

The local organizers are T. Brown (chairman), K. Borovkov (scientific secretary), G. Byrnes, K. Hamza, B. Hughes, F. Klebaner, R. Watson, N. Wormald, and A. Xia.

The organizers gratefully acknowledge financial and other valuable support from

- the Bernoulli Society for Mathematical Statistics and Probability;
- the Department of Mathematics & Statistics, University of Melbourne;
- the Department of Electrical & Electronic Engineering, University of Melbourne;
- the Centre for Actuarial Studies, University of Melbourne;
- the Council of the University of Melbourne;
- the National Science Foundation (U.S.A.).

The Conference Venue

The conference takes place in the Richard Berry Building, which is the home of the Department of Mathematics and Statistics, and all talks are either in this building or an adjacent building.

Three lecture theatres will be used.

THEATRE A is on the ground floor of the Richard Berry Building, adjacent to where the Registration Table is on Monday morning.

THE RUSSELL LOVE THEATRE is also in the the Richard Berry Building (upstairs), and is entered by stairs that are close to where the Registration Table is on Monday morning.

THE OLD GEOLOGY THEATRE (more pedantically described as ‘Old Geology 1’) is located in an adjacent building. You enter it from the small paved courtyard onto which the Theatre A foyer opens.

The long corridor that passes Theatre A leads to three other important places.

THE MATHEMATICAL SCIENCES LIBRARY is just past the entrances to Theatre A and the Russell Love Theatre.

If you walk along the corridor almost to its end you pass the the iMAC LABORATORIES, where internet facilities are available.

If you turn off the long corridor just before the iMac Laboratories, you will find the STAFF TEA ROOM, where morning and afternoon tea will be provided. The POSTER SESSION on Monday 1 July from 3.45 to 4.35 will be located close to the Staff Tea Room.

The venues for the Reception (Monday 1 July, 6.00–7.30 at Queen’s College) and the Conference Dinner (Thursday 4 July, 7.00 for 7.30 at University House) are a short walk from the Richard Berry Building.

The Week at a Glance

Time	Monday 1 July	Tuesday 2 July	Wednesday 3 July	Thursday 4 July	Friday 5 July
8.00	Registration				
8.45	Opening				
9.00–9.50	Invited talk Siegmund	Invited talk Embrechts	Invited talk Borisov	Invited talk Neuts	Invited talk vacant
9.55–10.45	Invited talk Johansson	Invited talk Protter	Invited talk Smith	Invited talk P. Taylor	Invited talk Hall
	Tea Break				
11.15–11.35	Contributed talks	Contributed talks	Contributed talks	Contributed talks	Contributed talks
11.40–12.00	Contributed talks	Contributed talks	Contributed talks	Contributed talks	Contributed talks
12.05–12.25	Contributed talks	Contributed talks	Contributed talks	Contributed talks	Contributed talks
12.30	Lunch				Closing
2.00–2.50	Invited talk Etheridge	Invited talk Ozaki	Excursion	Invited talk Del Moral	
2.55–3.45	Invited talk Haggstrom	Invited talk G. Taylor		Contributed talks (two)	
	Tea/posters	Tea break		Tea break	
4.15–4.35	Contributed talks/posters	Contributed talks		Contributed talks	
4.40–5.00	Contributed talks	Contributed talks		Contributed talks	
5.05–5.25	Contributed talks	Contributed talks		Contributed talks	
	Reception at Queen's College 6.00–7.30			Dinner at University House 7.00 for 7.30	

Monday 1 July

from 8.00 REGISTRATION THEATRE A FOYER

8.45–9.00 OPENING OF THE CONFERENCE THEATRE A
by J.A. MCKENZIE FAA, Dean of the Faculty of Science
and Professor of Genetics, University of Melbourne

INVITED TALKS THEATRE A

9.00–9.50 DAVID SIEGMUND (*Stanford University*)
Approximate tail probabilities for scan statistics

9.55–10.45 KURT JOHANSSON (*Kungliga Tekniska Högskolan, Stockholm*)
Random growth and determinantal processes

• TEA BREAK •

CONTRIBUTED TALKS TWO PARALLEL SESSIONS

11.15–11.35 BOB GRIFFITHS THEATRE A
The frequency spectrum of a mutation, and its age, in a general dif-
fusion model

11.15–11.35 NORIO KONNO RUSSELL LOVE THEATRE
Dualities for both discrete time and continuous time interacting par-
ticle systems

11.40–12.00 KENJI HANDA THEATRE A
Reversible distributions of multi-allelic Gillespie-Sato diffusion models

11.40–12.00 CHANH-DINH NGUYEN & RONALD H.W. HOPPE RUSSELL LOVE THEATRE
A level set method for some deposition process

12.05–12.25 GRAHAM BYRNES THEATRE A
Tuning protein score matrices for amino-acid abundances

12.05–12.25 ÖRJAN STENFLO RUSSELL LOVE THEATRE
Non-uniqueness in stationary probabilities for place-dependent ran-
dom iterations with contractive maps

.....
• LUNCH •

INVITED TALKS THEATRE A

2.00–2.50 ALISON ETHERIDGE (*University of Oxford*)
Evolution in spatially continuous populations

2.55–3.45 OLLE HÄGGSTRÖM (*Chalmers and Göteborg University*)
Stochastic models for spatial growth and competition

.....
• TEA BREAK AND POSTER SESSION •

Posters are displayed from 3.45 to 4.35 near the Staff Tea Room (*see p. 96*)

CONTRIBUTED TALKS TWO PARALLEL SESSIONS

4.15–4.35 CARLOS A. BRAUMANN THEATRE A
A general model of population growth in a random environment and
the Ito versus Stratonovich modeling issue

4.15–4.35 BEN HAMBLY RUSSELL LOVE THEATRE
Concentration results for a Brownian percolation problem

*The talk by TAKA SAKURAI scheduled for this time has been moved to Wednesday
at 11.40.*

.....
4.40–5.00 ANDREAS KYPRIANOU THEATRE A
Charging balls with a branching Markov diffusion

4.40–5.00 JOHN C. WIERMAN RUSSELL LOVE THEATRE
Bounds for bond and site percolation critical probabilities of two-
dimensional lattices

The talk by ANNA AMIRDJANOVA scheduled for this time has been withdrawn.
.....

TURN THE PAGE FOR FURTHER TALKS

CONTRIBUTED TALKS (CONTINUED) TWO PARALLEL SESSIONS

5.05–5.25 MARK FACKRELL THEATRE A
Characterization of matrix-exponential random variables

5.05–5.25 AIDAN SUDBURY RUSSELL LOVE THEATRE
Annihilation and deposition models in one dimension and on trees

.....
6.00–7.30 RECEPTION AT QUEEN'S COLLEGE

Tuesday 2 July

INVITED TALKS THEATRE A

9.00–9.50 PAUL EMBRECHTS (*ETH Zentrum, Zurich*)
Operational risk, ruin and mixing of stochastic processes

9.55–10.45 PHILIP PROTTER (*Cornell University*)
Liquidity risk and arbitrage pricing theory

• TEA BREAK •

CONTRIBUTED TALKS TWO PARALLEL SESSIONS

11.15–11.35 KONSTANTIN BOROVKOV & ALEX NOVIKOV THEATRE A
An application of factorization identities in mathematical finance

11.15–11.35 TOH TIN-LAM & CHEW TUAN-SENG RUSSELL LOVE THEATRE
On Itô-Henstock stochastic integral and integration-by-parts formula

11.40–12.00 ALEXANDER G. KUKUSH, DMITRII S. SILVESTROV
& EVELINA D. SILVESTROVA THEATRE A
Discrete time non-linear dynamical models of pricing processes and optimal pricing of American type options

11.40–12.00 JOHN T. CHEN RUSSELL LOVE THEATRE
Probability inequalities and stochastic processes

12.05–12.25 JEREMY PENN & DAVID HOBSON THEATRE A
Maximising the probability of a perfect hedge using an imperfectly correlated instrument

12.05–12.25 BENIAMIN GOLDYS RUSSELL LOVE THEATRE
Ergodic properties of some stochastic dissipative systems

.....
• LUNCH •

INVITED TALKS THEATRE A

2.00–2.50 TOHRU OZAKI (*Institute of Statistical Mathematics, Tokyo*)
Use of stochastic differential equation models in financial time series analysis

2.55–3.45 GREG TAYLOR (*Taylor Fry Consulting Actuaries, Sydney*)
Some simple VaR and tail probability results for sums of random variables

• TEA BREAK •

CONTRIBUTED TALKS TWO PARALLEL SESSIONS

4.15–4.35 FIMA KLEBANER THEATRE A
Option price when the stock is a semimartingale

4.15–4.35 STEVE DREKIC, DAVID C.M. DICKSON, DAVID A. STANFORD
& GORDON E. WILLMOT RUSSELL LOVE THEATRE
On the distribution of the deficit at ruin when claims are phase-type

4.40–5.00 DAVID X. CHAN, XIN GUO & EDWIN PEDNAULT THEATRE A
How many seasons are there in a stock market?

4.40–5.00 JIWOOK JANG RUSSELL LOVE THEATRE
Arbitrage-free premium calculation using the shot noise process and the Esscher measure

5.05–5.25 RUSTAM IBRAGIMOV & VICTOR H. DE LA PEÑA THEATRE A
Exact probability and moment inequalities for generalized moving averages, sample cross moments, payoffs of Asian options and sums of multilinear forms

5.05–5.25 JUNHWA BAN, YOOUNG KOO
& SUNGCHUL LEE RUSSELL LOVE THEATRE
Fuzzy linear regression and term structure of credit spread estimation

Wednesday 3 July

INVITED TALKS THEATRE A

9.00–9.50 IGOR S. BORISOV (*Sobolev Institute of Mathematics*)
 Poisson approximation for sums of independent multivariate random variables. Applications to empirical processes

9.55–10.45 LEONARD SMITH (*Oxford*)
 Stochastic models for deterministic processes: indistinguishable states in weather forecasts and laboratory chaos

.....
 • TEA BREAK •

CONTRIBUTED TALKS TWO OR THREE PARALLEL SESSIONS

11.15–11.35 AIHUA XIA THEATRE A
 Compound Poisson approximation for the distribution of extremes

11.15–11.35 AKIHIKO INOUE RUSSELL LOVE THEATRE
 A new method for prediction from a finite segment of the past

11.40–12.00 JANUSZ KAWCZAK & STANISLAV MOLCHANOV THEATRE A
 Effective estimation in Central Limit Theorem for the Markov chain with Döblin condition

11.40–12.00 TAKA SAKURAI RUSSELL LOVE THEATRE
 Computing convolutions of non-negative independent random variables using numerical transform inversion

The talk by TAKA SAKURAI has been moved from Monday 4.15. The talk by IGOR G. ZURBENKO scheduled for the above time and room has been withdrawn.

11.40–12.00 YANG WOO SHIN & BONG DAE CHOI OLD GEOLOGY
 A G -queue with positive and negative arrivals governed by QBD process

.....
 TURN THE PAGE FOR FURTHER TALKS

CONTRIBUTED TALKS (CONTINUED) THREE PARALLEL SESSIONS

12.05–12.25 DMITRII SILVESTROV THEATRE A
 Limit theorems for randomly stopped stochastic processes

12.05–12.25 SUJATA MUKHERJEE RUSSELL LOVE THEATRE
 Data mining in synodic time series for estimating trend by exponential smoothing

12.05–12.25 M.R. SALEHI-RAD, K. Mengersen & G.H. SHAHKAR OLD GEOLOGY
 Probability generating function in reserving $M/G/1$ models under four disciplines

.....
 • LUNCH •

.....
 FREE AFTERNOON FOR EXCURSIONS AND OTHER ACTIVITIES

Thursday 4 July

INVITED TALKS THEATRE A

9.00–9.50 MARCEL F. NEUTS (*University of Arizona*)
The MAP: A versatile, tractable class of point processes for stochastic modelling

9.55–10.45 PETER TAYLOR (*University of Melbourne*)
Capacity reconfiguration in logically fully-connected networks

• TEA BREAK •

CONTRIBUTED TALKS THREE PARALLEL SESSIONS

11.15–11.35 RUTH J. WILLIAMS THEATRE A
Dynamic scheduling for stochastic networks with flexible servers

11.15–11.35 AXEL HUTT & FRITHJOF KRUGGEL RUSSELL LOVE THEATRE
Extracting Langevin equations from stochastic time series and its application to magnetic resonance data: an evaluation study

11.15–11.35 YUKINAO ISOKAWA OLD GEOLOGY
Some problems of random sequential packing of intervals, discs, and cylinders

11.40–12.00 ANIKET GUNE & JUSSI KEPPO THEATRE A
Optimal calling routing with duration and stochastic demand

11.40–12.00 KACHA DZHAPARIDZE & HARRY VAN ZANTEN RUSSELL LOVE THEATRE
A series expansion for fractional Brownian motion

11.40–12.00 GÜNTER LAST OLD GEOLOGY
On inhomogeneous Boolean models with general compact particles

TURN THE PAGE FOR FURTHER TALKS

CONTRIBUTED TALKS (CONTINUED) THREE PARALLEL SESSIONS

12.05–12.25 KAVITA RAMANAN, ANIRVAN SENGUPTA, PARTHA MITRA & ILZE ZIEDINS THEATRE A
Markov random field models of multicasting in tree networks

12.05–12.25 SHERRY E. SCOTT RUSSELL LOVE THEATRE
A statistical perspective of the spectral analysis of fractal noise in terms of Wiener's generalized harmonic analysis

12.05–12.25 P.W. GODDARD & T.M. MILLS OLD GEOLOGY
Congestion in hospitals

• LUNCH •

INVITED TALK THEATRE A

2.00–2.50 PIERRE DEL MORAL (*C.N.R.S, Toulouse*)
Interacting processes and genealogical models in nonlinear estimation

CONTRIBUTED TALKS THREE PARALLEL SESSIONS

3.00–3.20 JUSSI S. KEPPO & MICHAEL G. SULLIVAN THEATRE A
Modeling the optimal strategy in an incomplete market

3.00–3.20 MICHAEL STEWART & JOHN ROBINSON RUSSELL LOVE THEATRE
Asymptotic methods for tests of homogeneity for finite mixture models

3.00–3.20 BONG-DAE CHOI, JEONGSIM KIM, IN-SUK WEE & BARA KIM OLD GEOLOGY
Asymptotic analysis of loss probability in finite queue with packet of variable length

3.25–3.45 MICHEL DE LARA & MARIE-JOËLLE ROCHET THEATRE A
Mummy herring, why do you keep on growing? Stochastic dynamic programming in theoretical ecology

3.25–3.45 CHUNSHENG MA RUSSELL LOVE THEATRE
Spatio-temporal covariance models

3.25–3.45 GEOFFREY YEO OLD GEOLOGY
A unified approach to burst properties of multiconductance single ion channels

• TEA BREAK •

CONTRIBUTED TALKS.....THREE PARALLEL SESSIONS

- 4.15–4.35 WIREMU SOLOMON, HETI AFIMEIMOUNGA & ILZE ZIEDINS
 THEATRE A
 The Downs–Thomson effect, uniqueness and stability in a user-determined equilibrium for a simple traffic network with a state-independent probabilistic policy
- 4.15–4.35 DARFIANA NUR RUSSELL LOVE THEATRE
 On the ergodicity of smooth threshold autoregressive (1) process with general delay parameter
- 4.15–4.35 ARNAUD DOUCET & VLADISLAV TADIC OLD GEOLOGY
 Optimization of sequential Monte Carlo methods using stochastic approximation
- 4.40–5.00 ROSS L. DAWE THEATRE A
 Using stochastic resonance to improve acoustic signal detection. I: Theory
- 4.40–5.00 D.J. DALEY RUSSELL LOVE THEATRE
 Revisiting asymptotics of the renewal function and their use in long-range dependence problems
- 4.40–5.00 GEOFFREY PRITCHARD & DAVID J. SCOTT OLD GEOLOGY
 A Markov eigenvalue test for pseudo-random number generators
- 5.05–5.25 ROSS L. DAWE & EDWIN R. GALBREATH THEATRE A
 Using stochastic resonance to improve acoustic signal detection. II: Experiment
- 5.05–5.25 SUNGCHUL LEE RUSSELL LOVE THEATRE
 The law of iterated logarithm of rescaled range statistics for $AR(1)$ model
- 5.05–5.25 DAMIAN CLANCY & PHILIP D. O'NEILL OLD GEOLOGY
 Perfect simulation for an epidemic model

DINNER AT UNIVERSITY HOUSE (7.00 PM FOR 7.30 PM)

Friday 5 July

INVITED TALKS.....THEATRE A

The invited talk by ZHI-MING MA originally scheduled for 9.00–9.50 has been cancelled. Announcements will be made during the conference concerning any replacement activities for this time.

- 9.55–10.45 PETER HALL (*Australian National University*)
 Signal analysis using nonuniform sampling rates

• TEA BREAK •

CONTRIBUTED TALKS.....TWO PARALLEL SESSIONS

- 11.15–11.35 MAKOTO MAEJIMA & JAN ROSI THEATRE A
 Type \mathcal{G} distributions on \mathbb{R}^d
- 11.15–11.35 GRAHAM WOOD, DAVID BULGER, DAVID ALEXANDER & BILL BARITOMPA RUSSELL LOVE THEATRE
 Stochastic processes and global optimisation
- 11.40–12.00 WILLIAM REED & BARRY HUGHES THEATRE A
 Power-law distributions from exponential processes
- 11.40–12.00 RU-SHUO SHEU, GEOFFREY PRITCHARD & ILZE ZIEDINS RUSSELL LOVE THEATRE
 Reservoir control problems
- 12.05–12.25 ANDREW BARBOUR THEATRE A
 Kolmogorov's 'first problem' in total variation
- 12.05–12.25 ANTONI SMOLUK RUSSELL LOVE THEATRE
 Modal value and stability
- 12.30–12.45 CLOSING OF THE CONFERENCE — THEATRE A

Session Chairs: Invited Talks

Monday	8.45–10.45	Tim Brown	Theatre A
	2.00–3.45	John Wierman	Theatre A
Tuesday	9.00–10.45	Fima Klebaner	Theatre A
	2.00–3.45	David Dickson	Theatre A
Wednesday	9.00–10.45	Kostya Borovkov	Theatre A
Thursday	9.00–10.45	Ruth Williams	Theatre A
	2.00–2.50	Joe Gani	Theatre A
Friday	9.55–10.45	Andrew Barbour	Theatre A

Session Chairs: Contributed Talks

Monday	11.15–12.25	Tony Pakes Aidan Sudbury	Theatre A Russell Love Theatre
	4.15–5.25	Alison Etheridge Barry Hughes	Theatre A Russell Love Theatre
Tuesday	11.15–12.25	Paul Embrechts Ben Hambly	Theatre A Russell Love Theatre
	4.15–5.25	Tohru Ozaki Philip Protter	Theatre A Russell Love Theatre
Wednesday	11.15–12.25	Igor Borisov Peter Brockwell Daryl Daley	Theatre A Russell Love Theatre Old Geology Theatre
Thursday	11.15–12.25	Marcel Neuts Ross Maller Nick Wormald	Theatre A Russell Love Theatre Old Geology Theatre
	3.00–3.45	Peter Taylor Ray Watson Graham Byrnes	Theatre A Russell Love Theatre Old Geology Theatre
	4.15–5.25	Günter Last Makoto Maejima Pierre Del Moral	Theatre A Russell Love Theatre Old Geology Theatre
Friday	11.15–12.25	Aihua Xia Terry Mills	Theatre A Russell Love Theatre