

**Royal Statistical Society
Research Workshop in Stochastic Networks**

Heriot-Watt University
Riccarton, Edinburgh, EH14 4AS, UK

August 1-11, 1995

REVISED PROGRAMME

(All talks, except the Clifford Paterson Lecture, will take place in Lecture Theatre 3)

Tuesday, 1 August

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|-------------------|---|
| 9.00 am–10.00 am | Bertsimas, Dimitris
Optimization and stability of fluid multiclass networks |
| 10.00 am–11.00 am | Harrison, Mike
The BIGSTEP approach to flow management
in complex processing networks |
| 11.30 am–12.30 am | Bramson, Maury
Convergence to equilibrium for fluid models
of FIFO queueing networks |
| 2.00 pm–2.20 pm | Gamarnik, David
Stability of priority policies and FIFO
for multiclass fluid networks |
| 2.20 pm–2.40 pm | Cryssikou, Thaleia
Performance bounds and heuristic policies
for loss networks |
| 2.40 pm–3.00 pm | Paschalidis, Yiannis
On the large deviation behavior of acyclic
single class networks and multiclass queues |
| 4.00 pm–5.00 pm | Kelly, Frank
Modelling communication networks: present and future
(Clifford Paterson Lecture—to take place in the James Watt
Centre) |

Wednesday, 2 August

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|-------------------|---|
| 9.00 am–10.00 am | Whittle, Peter
First passage, the evasion of first passage and large deviations |
| 10.00 am–11.00 am | Lewis, John
Thermodynamic aspects of probability theory |
| 11.30 am–12.30 am | Graham, Carl
Chaos hypothesis and propagation of chaos for large networks |
| 2.00 pm–3.00 pm | Glazebrook, Kevin
Conservation laws, submodular returns and greedy heuristics
for job selection and scheduling problems |
| 3.30 pm–4.30 pm | Gittins, John
Research planning as a stochastic optimisation problem |

Thursday, 3 August

- 9.00 am–10.00 am Dai, Jim
The stability region for two-station queueing networks
- 10.00 am–11.00 am Weiss, Gideon
Optimal control of transient re-entrant lines via fluid models
- 11.30 am–12.30 am Williams, Ruth
A multiclass closed queueing network
with unconventional heavy traffic behavior
- 2.00 pm–3.00 pm Mitrani, Isi
Approximate solutions for open queueing networks
with breakdowns and repairs
- 3.30 pm–4.30 pm O’Connell, Neil
Queue lengths and departures at single-server resources

Friday, 4 August

- 9.00 am–10.00 am Mountford, Tom
Convergence of output from series of queues
- 10.00 am–11.00 am Suhov, Yurii
An infinite series of queues with preserved service-times
- 11.30 am–12.30 am Harrison, Peter
Queues and networks with negative customers
- 2.00 pm–2.30 pm Ganesh, A J
On the tail of the sojourn time distribution for queues in series
- 2.30 pm–3.00 pm Rose, David
On a class of infinitely-growing networks
- 3.30 pm–4.00 pm Russell, Raymond
The large deviations of random time changes
- 4.00 pm–4.30 pm Toomey, Fergal
Large deviations and queues with finite waiting space

Saturday, 5 August

- 9.00 am–10.00 am Baccelli, Francois
The ergodic theory approach for the stability
of stochastic networks
- 10.00 am–11.00 am Foss, Serguei
Stability and transience of polling models
with state-dependent routing mechanism
- 11.30 am–12.00 pm Mairesse, Jean
Closed networks under stationary and ergodic assumptions:
stability issues and counter-examples
- 12.00 pm–12.30 pm Spieksma, Flora
Intrinsic convergence rates for countable Markov chains

AFTERNOON FREE

Sunday, 6 August

FREE

Monday, 7 August

- 9.00 am–10.00 am Pitts, Susan
Nonparametric estimation for quantities of interest in queues
- 10.00 am–11.00 am Willinger, Walter
Analysis of traffic measurements from high-speed networks:
a review and recent results
- 11.30 am–12.00 pm Kelly, Frank
Effective bandwidths and pricing
- 12.00 pm–12.30 pm McKeown, Nick
Achieving 100% throughput in an input-queued switch
- 2.00 pm–3.00 pm Gibbens, Richard
A decision-theoretic approach to call admission control
in ATM networks
- 3.30 pm–4.30 pm Mitra, Debasis
Some recent results on ATM network design and control

Tuesday, 8 August

- 9.00 am–10.00 am Tse, David
Statistical multiplexing of multiple time-scale sources:
theory, protocols and experiments
- 10.00 am–11.00 am Duffield, Nick
Time-dependent asymptotics for tail probabilities
in large multiplexers
- 11.30 am–12.30 am Weber, Richard
Estimation of overflow probabilities for state-dependent service
of traffic streams with dedicated buffers
- 2.00 pm–3.00 pm Shwartz, Adam
Controlling ATM networks: A large deviations analysis
- 3.30 pm–4.30 pm Hajek, Bruce
On load balancing in networks: equilibria and large-deviations

Wednesday, 9 August

- 9.00 am–10.00 am Reiman, Marty
Heavy traffic analysis of polling systems in tandem
- 10.00 am–11.00 am Majewski, Kurt
Large deviations of reflected Brownian motions
- 11.30 am–12.00 pm Simonian, Alain
Heavy traffic analysis of a fluid queue fed by on/off sources
with long range dependence
- 12.00 pm–12.30 pm Kovalenko, Igor
Applications of light traffic theory
to reliability problems
- AFTERNOON FREE

Thursday, 10 August

- 9.00 am–10.00 am Kurtz, Tom
Workload input models with long range dependence
- 10.00 am–11.00 am Evans, Suzanne
Analysing system behaviour on different time-scales
- 11.30 am–12.00 pm Konstantopoulos, Takis
Fractional Brownian approximations of stochastic networks
- 12.00 pm–12.30 pm Prabhakar, Balaji
Invariance, Interchangeability and Entropy
in Queueing Systems
- 2.00 pm–2.30 pm Alanyali, Murat
Analysis of simple algorithms for dynamic load balancing
with loss or migration
- 2.30 pm–3.00 pm MacPhee, Iain
On call admission to small circuit switched star networks
- 3.30 pm–4.00 pm Simonian, Alain
Asymptotic estimates for blocking probabilities
in large multi-rate circuit-switched networks
- 4.00 pm–4.30 pm Berezner, Sergei and Krzesinski, Tony
Order independent loss networks

Friday, 11 August

- 9.00 am–10.00 am Zachary, Stan
Dynamic and equilibrium behaviour in controlled loss networks
- 10.00 am–11.00 am Ziedins, Ilze
Asymptotically optimal control of star-shaped loss networks
- 11.30 am–12.30 am Hanly, Stephen
Congestion in wireless spread spectrum networks
- 2.00 pm–4.30 pm
Further talks and/or discussion