



UNIVERSITY OF SYDNEY

SCHOOL OF MATHEMATICS AND STATISTICS

Statistics Seminar

Monday 23 September, 4.00 p.m.

Lecture Room 350 (Level 3, Carslaw Building)

**The limit behaviour of the multi-type branching
processes in varying environments**

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Abstract

In the one-type case, a.s. convergence is equivalent to weak convergence, which always holds for some suitably chosen norming constants. But, this property no longer holds for multi-type processes. We shall show for any multi-type branching process in a varying environment convergent in probability that a certain sequence of linear combinations of the type sizes converges almost surely. Moreover, this sequence turns out to be instrumental in deriving a condition for continuity of the limiting distribution function. A sufficient condition is given for the support of the limit of a multi-type branching process in a varying environment to be $[0, \infty]$.

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