

8. Title: **The Lambda coalescent**

Proposer Bob Griffiths

Brief Description The Lambda coalescent is a random tree process which begins with n leaves and is built by multiple edges coalescing to vertices according to a probability distribution until a single root vertex is reached. The project is to learn about these processes and study properties by simulation and theory.

Simulation/Theoretical project

Prerequisites Part B Applied Probability,
Part C Mathematical Genetics course.- notes at
http://www.stats.ox.ac.uk/%7Egriff/mathgen_ht08.pdf

Computing ability to code programs

References

- Bertoin, J. *Random fragmentation and coagulation processes*. (2006)
Pitman, J. Coalescents with multiple collisions. (1999). *Ann. Probab.* 27, 1870–1902.
Pitman, J. *Combinatorial Stochastic Processes* (2006). *Lect. Notes in Maths* 1875 Springer.
Sagitov, S. The general coalescent with asynchronous mergers of ancestral lines. (1999) *J. Appl. Prob.* 36, 1116–1125.