

Abstract for an Invited Paper
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On the Relation Between Diffusion-Limited Coalescence and Annihilation¹

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The close similarity between the hierarchies of multiple-point correlation functions for the diffusion-limited coalescence and annihilation processes has caused some recent confusion, raising doubts as to whether such hierarchies uniquely determine an infinite particle system. We elucidate the precise relations between the two processes, arriving at the conclusion that the hierarchy of correlation functions does provide a complete representation of a particle system on the line. We also introduce a new hierarchy of probability density functions, for finding particles at specified locations and none in between. This hierarchy is computable for coalescence, through the method of empty intervals, and is naturally suited for questions concerning the ordering of particles on the line.

¹In collaboration with Eric Brunet