UNIQUENESS AND EXTINCTION PROPERTIES OF INTERACTING BRANCHING COLLISION PROCESSES

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Abstract: In this talk, we shall address some topics, particularly the uniqueness and extinction properties, of the Interacting Branching Collision Process (IBCP), which consists of two strongly interacting components: an ordinary Markov branching process (MBP) and a collision branching process (CBP). We establish that there is a unique IBCP, and derive necessary and sufficient conditions for it to be non-explosive that are easily to be checked. Explicit expressions are obtained for the extinction probabilities for the regular, critical-explosive and super-explosive cases. The subtle sub-explosive case will also be addressed. The associated expected hitting times are also considered.

References

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