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Abstracts of Short Communications and Posters

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12. Probability and Statistics

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Critical branching random walks in a random medium

Consider an infinite system of particles performing independent random walks, and branching at a rate proportional to the amount of a medium which they encounter. The global density of the medium is constant, but after a long time it is concentrated in small regions of high density. Then the particles can have (at least) three types of limiting behavior:

1) local extinction (due to the critical branching)

2) convergence to a Poisson system (with a deterministic nonzero global particle density)

3) convergence to a mixed Poisson system (with a random global particle density).

We give examples for all three kinds of behavior. The talk is based on joint work with A. Greven and A. Klenke (Erlangen).