

Session 51 - Local limits and connectivity for dynamic random digraphs.

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In this talk we consider a dynamic random graph model for networks where individuals arrive in families/groups and attach to the network according to a general attachment function. Specifically, the the graph is obtained by collapsing a continuous-time branching process into randomized families of nodes. The attachment function in the branching process is assumed to be regularly varying, giving rise to a wide range of possible in-degree distributions. The out-degree distribution is determined by the family sizes. We investigate the local limit of the out-component of a typical vertex, which turns out to be a Galton-Walton process. The local limit for the in-component has previously been described in terms of a randomly stopped branching process, and the complementary out-component result illustrates the lack of symmetry in this type of models. We use our results to describe the connectivity properties of the graph.

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