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Recent advances on Karlin models

This talk presents an overview on recent developments of the so-called Karlin models, which originally were introduced as an infinite urn scheme and the distribution on the urns is with a regularly-varying tail. Driven by an underlying random partition, the Karlin models present a new type of long-range dependence for stationary processes.

The talk will briefly present several recent advances on the Karlin models, and highlight on two recent results. First, the dependence structure of the scaling limits of the Karlin models can be naturally extended to set-indexed stable (including Gaussian) random fields, including and generalizing a few well-known manifold-indexed random fields. Second, a seemingly different aggregation model is introduced and shown to have the same scaling limit as the Karlin models driven by random partitions studied earlier in the literature.

The talk is based on several joint works with Olivier Durieu, Zuopeng Fu, Gennady Samorodnitsky, Yi Shen, and Na Zhang.