CONVERGENCE OF BIGGINS' MARTINGALES AT COMPLEX PARAMETERS

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In various probabilistic models such as Pólya urns, search trees, and fragmentation processes, complex smoothing equations arise in limit theorems for quantities of interest.

In my talk, I will consider such complex smoothing equations and explain the relation to convergence of Biggins' martingales in the branching random walk at complex parameters. For those martingales, Biggins (1992) proved local uniform convergence at complex parameters within a certain open domain. I will explain how critical smoothing equations are related to martingale convergence on the boundary of this domain. If time permits, I will also address rates of convergence.

The talk is based on joint work with Alexander Iksanov (Kyiv), Konrad Kolesko (Innsbruck) and Sebastian Mentemeier (Kassel).