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Asymptotically inspired moment-closure approximation for adaptive networks MAXIM SHKARAYEV, LEAH SHAW, College of William and Mary — Adaptive social networks, in which nodes and network structure co-evolve, are often described using a mean-field system of equations for the density of node and link types. These equations constitute an open system due to dependence on higher order topological structures. We propose a moment-closure approximation based on the analytical description of the system in an asymptotic regime. We apply the proposed approach to two examples of adaptive networks: recruitment to a cause model and epidemic spread model. We show a good agreement between the improved mean-field prediction and simulations of the full network system.

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