Infinite-Dimensional Scaling Limits of Many-Server Stochastic Networks

Abstract:

Stochastic networks arise in a variety of real world applications including telecommunications, service systems such as call centers, computer networks, health care services and biological systems. Leaving aside some very simple examples, it is usually infeasible to perform an exact analysis of these networks. A useful alternative is instead to identify a suitable approximation that provides insight into performance and can be shown to be accurate in a relevant asymptotic regime. This talk looks at two different types of scaling limits of two classes of many-server stochastic networks. In both cases, the scaling limits are infinite-dimensional and require the development of new techniques for their analysis.