Polyak-Łojasiewicz inequality on the space of measures and convergence of Fisher-Rao flows

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The Polyak-Łojasiewicz inequality (PŁI) in R^d is a natural condition for proving convergence of gradient descent algorithms. In this talk, I will discuss an analogue of PŁI on the space of probability measures P(R^d) and I will explain why it is a natural condition for showing exponential convergence of Fisher-Rao flows (which correspond to a class of mean-field birth-death processes). I will also discuss the connection between such flows and interacting particle systems that can be used in the problem of approximate sampling and in mean-field optimization. Based on joint work with Linshan Liu (Heriot-Watt University) and Łukasz Szpruch (University of Edinburgh).