# MAXIMUM LIKELIHOOD INFERENCE FOR HYPERBOLIC DYNAMICAL SYSTEMS

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ABSTRACT. We consider parameterized families of uniformly hyperbolic dynamical systems and their associated symbolic dynamical systems, and we assume that the systems are observed with some noise. In this setting, maximum likelihood estimation provides a natural statistical method of estimating the parameters controlling the system. Under suitable conditions on the family of systems and the noise, we show that maximum likelihood estimation is consistent; that is, it finds the correct parameters asymptotically in the large data limit. The proof of this result relies on the ergodic properties of the underlying dynamical systems.

The results in this talk are joint work with Sayan Mukherjee, Andrew Nobel, and Natesh Pillai.