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A General Piecewise Spline Maximum Entropy Method for Position Dependent Random Maps

Let $\{\tau_1, \tau_2, \cdots, \tau_K\}$ be a collection of nonsingular maps on $[0,1]$ into $[0,1]$ and $\{p_1(x), p_2(x), \cdots, p_K(x)\}$ be a collection of position dependent probabilities on $[0,1]$ into itself. We consider position dependent random maps $T = \{\tau_1, \tau_2, \cdots, \tau_K; p_1(x), p_2(x), \cdots, p_K(x)$ such that T preserves a unique absolutely continuous invariant measure μ^* with density f^*. In this talk, we describe a general piecewise spline maximum entropy method for the approximation of f^*. We present a proof of convergence of the general piecewise spline maximum entropy method for position dependent random maps. We also present numerical examples.