

**Castillo, Ismaël**

**On Bayesian supremum norm contraction rates.** (English) Zbl 1305.62189

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Summary: Building on ideas from [*I. Castillo* and *R. Nickl*, *Ann. Stat.* 41, No. 4, 1999–2028 (2013; [Zbl 1285.62052](#))], a method is provided to study nonparametric Bayesian posterior convergence rates when “strong” measures of distances, such as the sup-norm, are considered. In particular, we show that likelihood methods can achieve optimal minimax sup-norm rates in density estimation on the unit interval. The introduced methodology is used to prove that commonly used families of prior distributions on densities, namely log-density priors and dyadic random density histograms, can indeed achieve optimal sup-norm rates of convergence. New results are also derived in the Gaussian white noise model as a further illustration of the presented techniques.

**MSC:**

[62G20](#) Asymptotic properties of nonparametric inference

[62F15](#) Bayesian inference

[62G05](#) Nonparametric estimation

[62G07](#) Density estimation

Cited in **24** Documents

**Keywords:**

Bayesian nonparametrics; contraction rates; supremum norm

**Full Text:** [DOI](#) [arXiv](#)