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RATES OF CONTRACTION OF POSTERIOR DISTRIBUTIONS WITH PRODUCT PRIORS: BEYOND GAUSSIANITY

SERGIOS AGAPIOU

University of Cyprus, Nicosia, Cyprus
e-mail: agapiou.sergios@ucy.ac.cy

MASOUMEH DASHTI

University of Sussex, Brighton, United Kingdom
e-mail: m.dashti@sussex.ac.uk

TAPIO HELIN

University of Helsinki, Helsinki, Finldand
e-mail: tapio.helin@helsinki.fi

We study rates of posterior contraction in nonparametric settings with a family of function space priors, defined through p-exponential distributions for $p \in [1,2]$. Such rates, assume that the observations are generated from a fixed underlying value of the unknown, and measure the concentration of the posterior distribution on this underlying value in the infinitely informative data limit.

We will start with a short overview of the general posterior contraction theory, see for example [3], where general here refers to general models and general priors. Then we will recall a contraction result for general models for Gaussian process priors [2]. We will then define the p-exponential measures and study their concentration properties. Building on these properties as well as on the Gaussian contraction result, we will present a new contraction result for general models for p-exponential priors. Finally, we will apply our contraction result to obtain rates of posterior contraction in the white noise model with p-exponential priors.

References

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