
Lossless Bayesian inference in infinite dimension without discretisation or truncation: a case study on Lambda-coalescents

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Abstract

In this talk I will introduce the class of Lambda-coalescents, which are naturally parametrised by infinite dimensional probability measures. I will show that these measures can be consistently inferred from data without discretising or truncating the problem under verifiable conditions on the prior. The method resembles the so-called Likelihood Informed Subspaces approach to Bayesian inverse problems under Gaussian measures, and we expect it to generalise beyond just the Lambda-coalescent setting without difficulty. I will conclude by providing an empirical comparison of noisy and exact pseudo-marginal MCMC algorithms for sampling the resulting posteriors.

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