



BISP8

**Eighth Workshop on
BAYESIAN INFERENCE IN STOCHASTIC PROCESSES**

Canonical correlations and dependent prior processes

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The study of the structure of probability distributions on \mathbb{R}^d , with fixed margins, has a long history. An approach that stands out for its elegance is due to Lancaster (1958) and relies on the use of orthogonal functions on the marginal distributions. This approach is considered here to define vectors of canonically correlated gamma completely random measures (CRMs). It is shown that canonical correlation sequences are moments of means of Dirichlet processes with random base measure and a related simulation algorithm is described. A special family of canonically correlated dependent gamma CRMs is, then, used to define random probability measures for the estimation of dependent random densities. Finally, a comparison is drawn with dependent random probability measures that are generated by sigma-stable CRMs: to this end a suitably devised simulation MCMC sampling scheme is introduced.

**ABSTRACT
TYPE**

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