IGPP Virtual Seminar Series

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Numerical challenges in Bayesian inference: Ill conditioned problems, high-dimensional problems, and trans-dimensional problems

Date: Tuesday, April 28, 2020
Time: 12:30 pm - 1:45 pm, Pacific Time
Host: Tianze Liu
Register to attend: https://ucsd.zoom.us/meeting/register/tJIrduytpzkiHddQPeOoi2mxZhXTlyWdD6qW
Because this meeting will be recorded, please do not attend if you feel uncomfortable with it.

Sampling feasibility map

I will provide a quick review of the problem formulation of Bayesian inference and associated sampling methods. I then discuss the difficulties one can run into when solving Bayesian inference problems via sampling. These difficulties include anisotropies in posterior distributions and, of course, the extremely high-dimensionality typical of many geophysical problems. I will outline theory and intuition about how to overcome these difficulties. Finally, I discuss trans-dimensional inference in which the complexity of the numerical model is itself an unknown and present preliminary result of an ensemble sampler for trans-dimensional sampling problems.