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Bayesian parameter estimation and model comparison for discrete data spectra

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Discrete random variables appear in many scientific fields. In physics, laboratory experiments often involve discrete counts of particles or photons e.g. in nuclear physics, laser physics, and experimental high energy physics. In other cases, data is compressed into integer form. Such counts of some quantity are measured in 'channels' such as angle, wavelength, multiplicity etc. Data will initially be generated by simulation to test the analytical framework and numerical strategies in the Bayesian theorem. At an advanced stage, application to laboratory spectra becomes feasible with corresponding physics insights, advanced techniques such as nested sampling is included.

Apply to be
 considered for a student
   award (Yes / No)?

yes

Level for award
 (Hons, MSc,
   PhD, N/A)?

MSc

Main supervisor (name and email)
and his / her institution

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Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?

yes

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