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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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