Bayesian Probabilistic Numerical Methods (Part II)

Jon Cockayne, University of Warwick

For general computation of Bayesian probabilistic numerical methods, an approximation scheme called “numerical disintegration” will be presented and its asymptotic convergence established. The theoretical development will then be extended to pipelines of computation, wherein probabilistic numerical methods are composed to solve more challenging numerical tasks. In particular, it will be argued that Bayesian probabilistic numerical methods allow for the coherent propagation of uncertainty through a pipeline – a property which non-Bayesian probabilistic numerical methods lack at present. Illustrative applications will be presented.