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Bayesian Model Averaging

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Statistical modeling plays a key role in lattice field theory calculations. Examples including extracting masses from correlation functions or taking the chiral-continuum limit of a matrix element. We discuss the method of model averaging, a way to account for uncertainty due to model variations, from the perspective of Bayesian statistics. Statistical formulas are derived for model-averaged expectation values and for estimating the required model probability weights. In addition, we reframe the common problem of data subset selection (e.g. choice of minimum time separation for fitting a two-point correlation function) as a model selection problem and study model averaging as a universal alternative to hand tuning of fit ranges.

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