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The terms Eisenstein and Hu missed

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The matter power spectrum of cosmology, P(k), is of fundamental importance in cosmological analyses, yet solving the Boltzmann equations can be computationally prohibitive if required several thousand times, e.g. in a MCMC. Emulators for P(k) as a function of cosmology have therefore become popular, whether they be neural network or Gaussian process based. Yet one of the oldest emulators we have is an analytic, physics-informed fit proposed by Eisenstein and Hu (E&H). Given this is already accurate to within a few percent, does one really need a large, black-box, numerical method for calculating P(k), or can one simply add a few terms to E&H? In this talk I demonstrate that Symbolic Regression can obtain such a correction, yielding sub-percent level predictions for P(k).

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