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A study of a toy model of hydrodynamic turbulence using the NPRG

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The functional renormalisation group has already been successfully used to study turbulence and it appears as a very natural tool for this problem. However, there remains an unsolved problem related to the calculation of the structure functions in the turbulent state, which is hard to tackle directly from the Navier-Stokes equations. In this work, we study a simpler model: the Sabra shell model. Shell models form a family of toy models that reproduce key properties of hydrodynamic turbulence, and in particular the anomalous exponents of the structure functions. In this work, we present a FRG approach to the Sabra model and the results obtained from this method for the structure functions of this model.

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