

Anomalous dimensions and critical exponents for the GNY model at five loops

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Content

We renormalize the 4d $O(N)$ symmetric GNY model to high accuracy and determine its anomalous dimensions and beta functions. These are used to construct several N dependent critical exponents relevant for quantum transitions in semi-metals and in particular those connected with graphene in 3d when $N=2$. The high accuracy allows us to compare with results from other perturbative as well as non-perturbative techniques such as the conformal bootstrap.

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