

# **Abstract polymer gas. A simple inductive proof of the Fernández-Procacci criterion**

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## **Abstract:**

The abstract polymer gas is a discrete model used to study a large number of physical systems. A key problem for the model is to find radii  $R$  such that the partition function is nonvanishing in the polydisc of radii  $R$ . The best bound for the radii was given by Fernández-Procacci criterion (2007), whose proof involves heavy combinatorial machinery. We will provide an alternative proof of this criterion based on a simple inductive argument inspired by the connection between the abstract polymer model and the Lovász Local Lemma.