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Two-dimensional Fermi gases at a p-wave resonance SHAOJIAN JIANG, FEI ZHOU, Univ of British Columbia — We study the possibility of p-wave superfluid of two-dimensional Fermi gases at a p-wave resonance using a two-channel model. Supplemented by an ϵ-expansion near two dimensions, a systematic analysis is carried out at the broad-resonance limit when the interchannel coupling is strong. We show that a homogeneous p-wave pairing expected at the mean-field level is actually unstable due to fluctuation effects, in contrast to the previously predicted $p + ip$ superfluid at the narrow-resonance limit. This implies an onset of instability when the interchannel coupling is increased.

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