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**P-wave contacts for two dimensional quantum gas** YICAI ZHANG,  
The University of Hong Kong, ZHENHUA YU, Institute for Advanced Study, Tsinghua University, SHIZHONG ZHANG, The University of Hong Kong — The s-wave contact has played an important role in our understanding of the strongly interacting Fermi gases. Recently, theoretical and experimental work has shown that two similar contacts exist for a p-wave interacting Fermi gas in three-dimensions. In this work, we extend the considerations to two dimensional spinless Fermi gas and derive exact results regarding the energy, momentum distributions and in particular, shifts of monopole frequency in a harmonic trap. Asymptotic formula for the frequency shift is given at high temperature via virial expansion and this can be checked by future experiments.

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