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### **Color superconductivity and charge neutrality**

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It is generally believed that systems with two fermion species that form Cooper pairs form a neutral state, where the number densities of the two fermion species are equal. This belief is based on mean field calculations with a zero-range contact interaction. We have put this claim to the test using a Yukawa model, where the interaction range is finite. The results of this study suggest that the conclusions drawn from the zero-range interaction case may not be as general as initially believed. Our findings also support the results of an earlier Dyson-Schwinger based study that found the color-flavor locked phase to be non-neutral. As a next step, we are now moving on from employing a Yukawa model to using actual QCD degrees of freedom.

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