

On gap equations and color-flavor locking in cold dense QCD with three massless flavors

I.A. Shovkovy ^{a,1}, L.C.R. Wijewardhana ^{a,b}

^a *Physics Department, University of Cincinnati, Cincinnati, OH 45221-0011, USA*

^b *Institute of Fundamental Studies, Kandy, Sri Lanka*

Received 4 October 1999; accepted 25 October 1999

Editor: M. Cvetič

Abstract

The superconductivity in cold dense QCD with three massless flavors is analyzed in the framework of the Schwinger-Dyson equation. The set of two coupled gap equations for the color antitriplet, flavor antitriplet $(\bar{3}, \bar{3})$ and the color sextet, flavor sextet $(6, 6)$ order parameters is derived. It is shown that the antitriplet-antitriplet gives the dominant contribution to the color-flavor locked order parameter, while the sextet-sextet is small but nonzero. © 1999 Published by Elsevier Science B.V. All rights reserved.

PACS: 11.15.Ex; 12.38.Aw; 12.38.-t; 26.60.+c