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Chriral shift in dense relativistic matter in magnetic field

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Abstract content

Summary

We show that the normal phase of dense relativistic matter in a magnetic field is characterized by a nonzero relative shift of the longitudinal momenta in the dispersion relations of the left-handed and right-handed fermions. The presence of such a shift in the ground state does not break any symmetry of the action. To leading order, the corresponding chiral shift parameter is linear in the coupling constant. The induced chiral shift of the Fermi surfaces of the opposite chirality fermions may play an important role in transport and emission properties of matter in compact stars and in heavy ion collisions.

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