

Spontaneous Spin Textures in Hubbard Systems

States that break spin-rotational, but not time-reversal symmetry are found in non-centrosymmetric systems with spin-orbit coupling. They are characterized by a spin polarization that lives in the reciprocal space - spin texture, but does not give rise to direct space polarization. Spin textures find interesting applications in spintronics where they allow manipulation of magnetization by current and vice versa. We will present a mechanism that gives rise to a spin textures in centrosymmetric systems without spin-orbit coupling and present explicit calculation for a multi-band Hubbard model.

J. Kunes and D. Geffroy, Phys. Rev. Lett. 116, 256403 (2016)