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Periodic spin textures in a degenerate $F=1$ ^{87}Rb spinor Bose gas

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We report on the spin textures produced by cooling unmagnetized ^{87}Rb $F=1$ spinor gases into the regime of quantum degeneracy. At low temperatures, magnetized textures form that break translational symmetry and display short-range periodic magnetic order characterized by one- or two-dimensional spatial modulations with wavelengths much smaller than the extent of the quasi-two-dimensional degenerate gas. Spin textures produced upon cooling spin mixtures with a non-zero initial magnetic quadrupole moment also show ferromagnetic order that, at low temperature, coexists with the spatially modulated structure.

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