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**Spin-orbit coupling induced FFLO-like superfluidity and skyrmion-like polarization textures in trapped Fermi gases**[1] MENDERES ISKIN, Koc University — We study the interplay between the Zeeman field and spin-orbit coupling (SOC) in harmonically trapped Fermi gases loaded into a two-dimensional single-band tight-binding optical lattice. Using the Bogoliubov-de Gennes theory, we find that the Zeeman field combined with a Rashba SOC gives rise to (*i*) Fulde-Ferrell-like superfluidity and (*ii*) skyrmion-like polarization textures near the edges of the system. The effects of interaction, temperature, SOC anisotropy and Zeeman field anisotropy on the superfluid ground state and polarization textures will also be discussed.

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