

Abstract Submitted
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Quantum degenerate Fermi and Bose gases of dysprosium¹

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— Advances in the quantum manipulation of ultracold atomic gases are opening a new frontier in the quest to better understand strongly correlated matter. By exploiting the long-range and anisotropic character of the dipole-dipole interaction, we hope to create novel forms of quantum mesophases, states of quantum soft matter intermediate between canonical states of order and disorder. Our group has recently created quantum degenerate gases of both bosonic and fermionic isotopes of dysprosium, the most magnetic atom. With this most dipolar degenerate Fermi gas yet created, we intend to investigate quantum liquid crystals, mesophases thought to exist in, e.g., high T_c cuprate superconductors.

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