

Challenges of the world-wide experimental search for the electric dipole moment of the neutron



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While input guide fields for polarized neutrons and He-3 do not have the same uniformity requirement as the main precession coil, their design faces other unique challenges. For example, the field must taper by several orders of magnitude while preserving polarization, and transition into the main field without causing additional gradients. We describe methods being developed to calculate the ideal field taper. Using the magnetic scalar potential, we design surface-current coils to produce this exact field profile.

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