

On the hyperfine anomaly and atomic parity violation

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I will discuss the hyperfine anomaly, and its relevance to tests of the standard model and searches for new physics in precision atomic experiments. The hyperfine anomaly gives the finite-nuclear-size contribution to the hyperfine structure, and is difficult to quantify at the required level of accuracy from nuclear structure theory. I will describe how — through a combination of atomic theory and atomic and nuclear experiments — the hyperfine anomaly may be determined. An accurate understanding of this effect is needed for reliable tests of atomic structure theory in the nuclear region, and for the development of precision atomic many-body methods. This is important for the error analysis of atomic parity violation studies, and for maximising the impact on particle physics discovery.