# Prospective Optical Lattice Clocks In Neutral Atoms With Hyperfine Structure

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Optical lattice clocks (OLCs) combine the accuracy and stability vital for next-generation frequency standards. Central to these clocks are atoms trapped within engineered optical lattices operating at the 'magic' wavelength where the differential AC Stark shift between ground and excited clock states vanishes. To date only alkaline-earth like atoms based on clock states with total electronic angular momentum $J=0$ have successfully realized magic wavelength optical lattices, owing to their rejection of fine-structure level vector and tensor shifts. Here we discuss alternative clock transitions between states of the same parity. By leveraging hyperfine structure, we enable (i) clock transitions between two clock states with total angular momentum $F=0$ and (ii) M1/E2 transitions between a state with $F=0$ and a second state with $J=1/2$, $m_F=0$. Such transitions provide vital suppression of vector and tensor shifts, extending OLC to new atomic species. We present discussion of such operation in neutral manganese and copper, discussing both advantages and disadvantages of the proposed atoms.