

Abstract Submitted  
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**Possibility of Stark-insensitive cotrapping of two atomic species in optical lattices** MUIR MORRISON, University of Nevada, Reno, V.A. DZUBA, University of New South Wales and University of Nevada, Reno, A. DEREVIANKO, University of Nevada, Reno — Much effort has been devoted to removing differential Stark shifts for atoms trapped in specially tailored “magic” optical lattices, but thus far work has focused on a single trapped atomic species. In this work, we extend these ideas to include two atomic species sharing the same optical lattice. We show qualitatively that, in particular, scalar  $J = 0$  divalent atoms paired with non-scalar state atoms have the necessary characteristics to achieve such Stark shift cancellation. We then present numerical results on “magic” trapping conditions for  $^{27}\text{Al}$  paired with  $^{87}\text{Sr}$ , as well as several other divalent atoms.

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