

Abstract Submitted
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Hyperfine quenching rates of $nsnp^3P_0 - ns^2^1S_0$ transition in ^{25}Mg , ^{87}Sr and ^{113}Cd ZUHRIANDA ZUHRIANDA, M.S. SAFRONOVA, Dept. of Physics and Astronomy, University of Delaware — Determining the $nsnp^3P_0$ state decay rate is important for the development of atomic clock based on $nsnp^3P_0 - ns^2^1S_0$ transition. In the fermionic isotope there exist a decay channel for the $nsnp^3P_0 - ns^2^1S_0$ transition through the nuclear hyperfine interaction which can contribute to the total $nsnp^3P_0$ lifetime. We computed the hyperfine quenching rates of the $nsnp^3P_0 - ns^2^1S_0$ transition in ^{25}Mg , ^{87}Sr and ^{113}Cd . The calculations are carried out using the ab-initio CI-all order package. Our final results of the hyperfine quenching rates are 0.43 mHz for ^{25}Mg , 9.7 mHz for ^{87}Sr and 77 mHz for ^{113}Cd .

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