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**Theoretical investigation of Black-body Zeeman Shifts in Microwave Atomic Clock** JIZE HAN, YANI ZUO, JIANWEI ZHANG, LIJUN WANG, Tsinghua Univ — With the development of microwave atomic clocks, black-body radiation Zeeman shifts need to be considered carefully. In this Letter, the frequency shifts of hyperfine splitting of ground state due to black-body magnetic field are investigated. The relative frequency shifts of different alkali atoms and alkali-like ions which could be candidates of microwave atomic clocks are calculated, and results are from  $-0.977\text{E-}17[\text{T}(\text{K})/300]^2$  to  $1.947\text{E-}17[\text{T}(\text{K})/300]^2$  for different atoms. These results are consistent with previous works but with more precision, detailed derivations and clear physical pictures.

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