Hyperfine-induced $2s2p\,^3P_0 - 2s^2\,^1S_0$ transition in Be-like ions[1]

K.T. CHENG, M.H. CHEN, Lawrence Livermore National Laboratory — The hyperfine-induced $2s2p\,^3P_0 - 2s^2\,^1S_0$ transition rate for Be-like $^{47}\text{Ti}^{18+}$ is recently measured in a storage-ring experiment by Schippers *et al.* [Phys.Rev.Lett. **98**, 033001 (2007)]. The measured value of 0.56(3) s^{-1} is almost 60% larger than the multi-configuration Dirac-Fock value of 0.356 s^{-1} by Marques *et al.*[Phys. Rev. A **47**, 929 (1993)]. In this work, we use a large-scale relativistic configuration-interaction method to calculate this hyperfine-induced rate. Coherent hyperfine-quenching effects between the $2s2p\,^3P_1$ and $^1P_1$ states are included in a radiation damping formalism. Contrary to the findings of Marques *et al.*, contributions from the $^1P_1$ state are substantial and lead to much better agreement with experiment.

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