Abstract Submitted
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Relativistic Configuration Interaction method for accurate determination of energy levels, wavelengths, oscillator strengths and radiative rates singly and doubly excited states of Helium-like Plomb SOUMAYA MANAI, DHIA ELHAK SALHI, SIRINE BEN NASR, HAIKEL JELASSI, National Center for Nuclear Science and Technologies, Tunisia — The need for more accurate atomic data becomes more greater than before with the ongoing ITER project. Therefore, in recent years, there have been extensive spectroscopic studies, both experimental and theoretical, of helium isoelectronic sequence[1]. We provide accurate energies for the lowest singly excited 70 levels among 1snl(n 6,l (n 1)) configurations and the lowest doubly excited 250 levels arising from the K-vacancy 2ln'l'(n' 6,l' (n' 1)) configurations of He-like Pb. Accurate determination of wavelengths, oscillator strengths and radiative rates are carried out through the Relativistic Configuration Interaction method (RCI) implemented in the flexible atomic code (FAC)[2]. We have also considered relativistic effects (QED and Breit corrections). Several new energy levels were found out where no other theoretical or experimental results are available. We expect that our extensive calculations will be useful to experimentalists for astrophysical line identification and plasma diagnostics[3]. References: [1] D. H. Salhi, S. Ben Nasr, S. Manai and H. Jelassi, Accepted in Results in Physics, 2021. [2] M.F. Gu, Canadian Journal of Physics, 86 (2008) 675-689. [3] D. H. Salhi, P. Quinet and H. Jelassi, Atomic Data and Nuclear Data Tables, 126 (2019) 675689.

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