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Measurements of KLL dielectronic recombination resonances of Ba by Shanghai EBIT

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In the present work, the resonance strengths of KLL DR processes of He-like to C-like barium ions are measured, where doubly excited intermediate levels of different charge states are studied in detail. The result is compared by theoretical values which is calculated by the flexible atomic code (FAC). The uncertainty of the experiment is about 8%.

The fitting process of the experiment are done by two steps. In the first step, the abundance factor f_q of different charge states are fitted, where the least square method is used. In the next step, the DR resonance strengths of the experiment are fitted for each level, giving out the correcting factor K_d. The experiment setup in this work was similar to that described in our previous work[1], which was performed at the Shanghai EBIT[2]. The beam energy was ramped down from 23.90 keV to 21.35 keV and backed up in 25 ms. A 75 ms interval was applied before the next ramping, in order to maintain the charge state distribution.

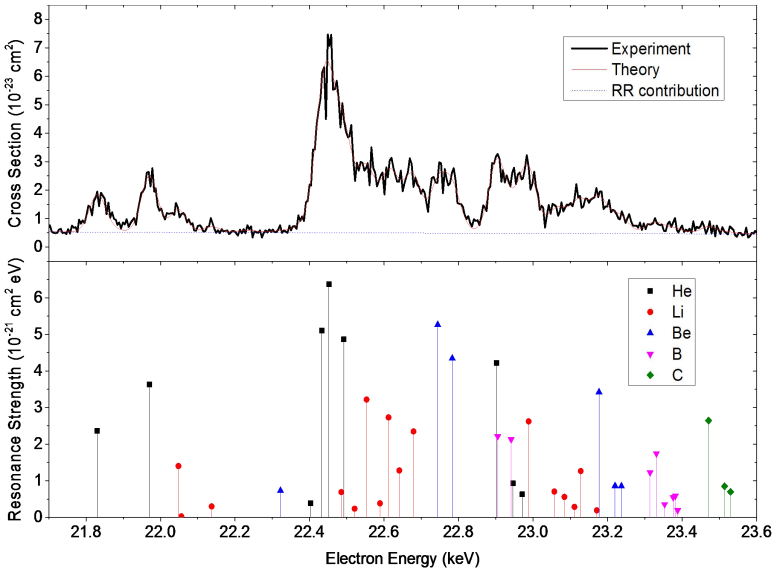

FIG. 1 KLL DR experiment spectrum and fitting results of barium

References:

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2.X. Zhu et al., Nucl. Instrum. Methods B 2005 **235** 509