

## 武汉物数所理论交叉部学术报告

# Black-body radiation shifts of atomic energy levels: the $(Z\alpha)^4 \alpha T^2 / m$ corrections

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The next-to-leading order black-body radiation (BBR) shift to an atomic energy level, which is  $(Z\alpha)^4 \alpha T^2 / m$ , was studied by using the approach of nonrelativistic quantum electrodynamics (NRQED) and S-matrix theory. To my knowledge, this  $T^2$  dependent term has not been investigated before. The correction we derived is in principle applicable to many-electron atoms. In this talk, I will show numerical results for the case of hydrogen-like systems. Although this correction is only 1% of the leading-order BBR-shift in hydrogen at room temperature, it will become comparable to the leading term for highly charged atoms at low temperature.

March 24, Thursday 10:30-12:00  
频标楼4楼报告厅 (4<sup>th</sup> Floor Lecture Hall)