

Abstract

The spectroscopy of atomic thallium $6P_{3/2} \rightarrow 6D_{5/2}$ transition has been observed by laser-induced fluorescence (LIF). The absolute frequency of atomic thallium (^{205}Tl) $6P_{3/2}$, $F=2 \rightarrow 6D_{5/2}$, $F=3$ transition has been measured for the first time to an uncertainty of 56 MHz using the femtosecond optical frequency comb and the measured absolute frequency of this transition is 851634646 (56) MHz. The possibility of laser cooling of atomic thallium has also been studied and the calculation shows that the velocity of atomic thallium could be decreased to 12.1 m/s.

