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## The construction of the low energy Li+ source and the preliminary spectroscopy for the 1s2s 3S - 1s2p 3P transitions

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As the simplest system, Li+ has significant application in verifying the quantum electrodynamics (QED) theory and determination of the fine-structure constant, because the spectrum of Li+ ion can be calculated accurately in theory. We constructed a low energy Li+ source by electron bombardment, and energy of the 7Li+ ions is 500 eV. The 1s2s 3S -1s2s 3P transitions of 7Li+ are investigated by laser saturation spectroscopy on a lowenergy Li+ ion beam which radial Doppler broadening is optimized to 200 MHz, and the transition frequency is identified by Lamb dip (Linewidth  $\sim$  40 MHz). Meanwhile, the laser frequency is measured by an optical frequency comb (FC8004, Menlo Systems GmbH). Hyperfine and fine structure splits can be derived from these transitions, in which most of the systematic frequency shifts are canceled. We are optimizing the stability of the laser and ion beam. The uncertainty of the hyperfine and fine structure splits is promising to less than 100 kHz.

## print service

no, I'll bring my poster to the conference

Author: GAO, Kelin (Wuhan Institute of Physics and Mathematics (WIPM) of Chinese Ac)
Presenter: GAO, Kelin (Wuhan Institute of Physics and Mathematics (WIPM) of Chinese Ac)
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