TWO-PHOTON EXCITATION OF ULTRACOLD ATOMS TO
RYDBERG STATES
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In this work we discuss two-photon excitation and diagnostic of ultra-
cold Rydberg atoms in a magneto-optical trap [1]. Lithium atoms were
excited by using ultraviolet CW laser. For identification of Rydberg tran-
sitions we recorded resonance fluorescence of ultracold atoms. Spectra of
transitions 2P — nS, 2p — nD were measured. Our results are in good
agreement with theoretical simulations and experimental data available in
literature. Presented work is a part of our project focused on preparation
and study of ultracold plasma and Rydberg matter [2, 3].

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