

Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

Fluorescence detection system for nuclear laser spectroscopy of Rb in superfluid helium A. SASAKI, T. WAKUI, Tohoku Univ., T. FURUKAWA, Tokyo Inst. of Tech., M. KAZATO, Osaka Univ., M. WADA, T. SONODA, A. TAKAMINE, T. KOBAYASHI, M. NISHIMURA, H. UENO, A. YOSHIMI, N. AOI, S. NISHIMURA, Y. TOGANO, M. TAKECHI, RIKEN, Y. KONDO, Tokyo Inst. of Tech., A. HATAKEYAMA, Tokyo Univ. of Agr. Tech., Y. MATSUURA, Y. KATO, Meiji Univ., A. ODAHARA, T. SHIMODA, Osaka Univ., K. ASAHI, Tokyo Inst. of Tech., T. SHINOZUKA, Tohoku Univ., T. MOTOBAYASHI, Y. MATSUO, RIKEN — Laser spectroscopy in superfluid He (He II) is useful for determining the spins and moments of nuclei. We will apply this method, named OROCHI (Optical RI-atom Observation in Condensed Helium as Ion-catcher), to unstable nuclei. Because more photons of laser-induced fluorescence (LIF) from low-yield unstable nuclei should be observed, a highly efficient fluorescence detection system is indispensable to the project. We thus performed an optical simulation in order to maximize the detection efficiency while minimizing background count rates. The fluorescence detection system has been built based on the simulation results. As the first step of the project, we will perform an experiment to detect LIF from Rb atoms stopped in He II, using our fluorescence detection system. Details of the system and results of the off- and on-line experiments will be presented.

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Date submitted: 01 Jul 2009

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