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A Laser system for flow field imaging in superfluid helium using He_2* SO SUZUKI, VOLKER SONNENSHEIN, TAKUMI MARUYAMA, SHINICHIRO WAKI, HIDEKI TOMITA, YOSHIYUKI TSUJI, TETSUO IGUCHI, Nagoya University — For visualization of the flow field in superfluid Helium (He II), He_2* excimer can be traced by using Laser induced fluorescence (LIF). In our group the proposed He_2* excimer generation method is based on the neutron absorption reaction of naturally abundant ^{3}He in Helium. Small He_2* clusters generated by this method are then available for 3D LIF imaging. By applying this method, we already confirmed successful generation of He_2* excimers using our laser system. In this study, for successful visualization of He_2* excimer images in superfluid Helium, the required laser parameters, such as f intensity, repetition rate and wavelength were investigated. For systematic characterization of these, an offline system based on a high voltage discharge for excimer generation is being set up to provide a more intense and accessible source of excimers, not requiring the use of a neutron beam.

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