

Abstract Submitted  
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**Lifetime measurements of the rovibrational levels of the  $6^1\Sigma_g^+$  state of sodium dimer**<sup>1</sup> LOK RAJ PANT, DINESH WAGLE, MICHAEL SAARANEN, BURCIN BAYRAM, Miami University — We measured the lifetime on the  $6^1\Sigma_g^+(\nu = 6, 7, 8, J = 31)$  state of sodium molecule. The molecules of sodium were formed inside the heat-pipe at around 300°C in the presence of the argon gas as a buffer medium. The ground state of sodium molecules were populated thermally and excited from the ground state to the  $6^1\Sigma_g^+(\nu = 6, 7, 8, J = 31)$  states through a double resonance, with  $A^1\Sigma_u^+(8, 30)$  as an intermediate state. Two pulsed dye lasers, pumped by 532 nm Nd:YAG laser, were used for two-step excitation to the final state. The disperse fluorescence spectrum was collected and sent to the photon counter which measured the lifetime of the selected state. The radiative lifetime was extracted from the Stern-Volmer plot.

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