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Time-Resolved Double-Resonance Spectroscopy: vibrationally resolved lifetimes of the Na_2 $6^1\Sigma_g^+(v=8)$[1] MICHAEL SAARANEN, BURCIN BAYRAM, Miami University — When determining the dipole transition moment, lifetimes, Einstein A coefficients and absorption lines are all important for ensuring accuracy. Thus here we present our ongoing experimental study of the lifetime of the $6^1\Sigma_g^+(v=8)$ electronic state of sodium dimers. In this experiment the second harmonic of a Nd:YAG laser is used to pump two pulsed dye lasers that are used to make the $X^1\Sigma_g^+(v=0) \rightarrow A^1\Sigma_u^+(v=7) \rightarrow 6^1\Sigma_g^+(v=8)$ transition. We observed the fluorescence resulting from this molecular transition to measure the radiative properties using a Stern-Volmer plot. We will present preliminary results of the measurement and provide comparison with theoretical calculations.

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