LASER INDUCED FLUORESCENCE SPECTROSCOPY OF THE SiNSi RADICAL I:
THE $\tilde{C}\,^2\Delta_u - \tilde{X}\,^2\Pi_g$ TRANSITION

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We have generated SiNSi in a supersonic free jet expansion, and measured the laser induced fluorescence (LIF) spectrum in the ultraviolet (UV) region. Dispersed fluorescence (DF) spectra from the single vibronic levels (SVL) have also been recorded by exciting each observed vibronic band. On the basis of the rotational analyses of the observed vibronic bands and the appearance the vibrational structure in the DF spectra, several bands were attributed to the $\tilde{C}\,^2\Delta_u - \tilde{X}\,^2\Pi_g$ system of SiNSi. From the analysis of the 0_0^0 band with an origin of 29,261.61 cm^{-1}, the effective spin-orbit constants were determined to be 140.59 and 2.623 cm^{-1} for the $\tilde{X}\,^2\Pi_g$ and $\tilde{C}\,^2\Delta_u$ states, respectively. In total, ten vibronic levels including the zero vibrational level were assigned to the $\tilde{C}\,^2\Delta_u$ state, and the vibonic structure was analyzed considering the Renner-Teller interaction.