THE N_2 C$''$ $^5\Pi_{ui}$ (v=3) STATE: AN OPPORTUNITY FOR SPIN-ORBIT CHICANERY

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The N_2 C$''$ $^5\Pi_{ui}$ (v=3) state has been fully characterized by observation and rotational analysis of the N_2 C$''$ $^5\Pi_{ui}$–A$'$ $^5\Sigma_g^+$ (3-1) band. The spin-splittings in the C$''$ $^5\Pi_{ui}$ state are observed[b] (see previous presentation) and are found to be consistent with semi-empirical predictions of diagonal and isoconfigurational off-diagonal spin-orbit coupling constants.[c] A short tutorial on prediction of spin-orbit matrix elements will be presented, drawing heavily on material presented in "The Spectra and Dynamics of Diatomic Molecules" by H. Lefebvre-Brion and RWF.

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[b] O. Pirali and D. W. Tokaryk, J. Chem. Phys. **124**, 081102 (2006).
[c] R. W. Field, O. Pirali and D. W. Tokaryk, J. Chem. Phys. **124**, 081103 (2006).