

Abstract Submitted  
for the DAMOP09 Meeting of  
The American Physical Society

**Experimental Studies of NaCs**<sup>1</sup> S.T. ASHMAN, C.M. WOLFE, J.P. HUENNEKENS, Lehigh University — We present experimental studies of excited electronic states of the NaCs molecule that are currently underway in our laboratory. The optical-optical double resonance method is used to obtain Doppler-free excitation spectra for several excited states. These data are being used to obtain Rydberg-Klein-Rees (RKR) or Inverse Perturbation Approach (IPA) potential curves for these states. We are also trying to map the bound portion of the  $1(a)^3\Sigma^+$  potential using resolved laser-induced fluorescence and Fourier transform spectroscopy to record transitions into the shallow well. Bound-free spectra from single ro-vibrational levels of electronically excited states to the repulsive wall of the  $1(a)^3\Sigma^+$  state are also being recorded. Using the previously determined excited state potentials, we can fit the repulsive wall of the  $1(a)^3\Sigma^+$  state to reproduce the experimental spectra using LeRoy's BCONT program. A slightly modified version of BCONT will also be used to fit the relative transition dipole moments,  $\mu_e(R)$ , as a function of internuclear separation  $R$ , for the various bound-free electronic transitions.

<sup>1</sup>Work supported by the National Science Foundation.

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Date submitted: 27 Jan 2009

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