SPECTROSCOPY OF THE $c^1\Pi$-$a^1\Delta$ AND $A^3\Pi$-$X^3\Sigma^-$ TRANSITIONS OF NH-Ne

GALINA KERENSKAYA and MICHAEL C. HEAVEN, *Department of Chemistry, Emory University, Atlanta, GA 30322*.

Vibronic bands of NH-Ne were observed in conjunction with the *c*-*a* 0-0 and 1-0 transitions. The close correspondence between the intervals of the complex bands and the rotational spacings of NH(*c*) indicated that NH performs almost free internal rotation within the complex. Bands associated with the monomer P(2) line showed sharp rotational structure, indicative of stable eigenstates. The energy range of the sharp bands defined lower bounds for the *c* and *a* state dissociation energies of $D_0' > 34$ cm^{-1} and $D_0'' > 13$ cm^{-1}, respectively. NH-Ne bands associated with the monomer Q(2) and R(2) lines were diffuse due to rapid rotational predissociation.
Bands of the NH-Ne $A^3\Pi$-$X^3\Sigma^-$ system were seen in association with the monomer 1-0 and 0-0 transitions. The most intense bands of NH-Ne appeared in association with the lowest energy rotational lines of the monomer. The lowest energy feature was red-shifted from the monomer by 19.2 cm^{-1}, and the energy range spanned by the bands that exhibited sharp rotational structure was 51 cm^{-1}. Hence, it appears that the triplet states interact more strongly with Ne than the singlet states. Homogeneously broadened complex features were found on the high frequency side of rotationally excited monomer lines.