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#### OBSERVATION AND ANALYSIS OF ION-PAIR TRANSITIONS OF I<sub>2</sub> COOLED IN A SUPERSONIC FREE-JET EXPANSION

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The A<sub>N</sub>state of I<sub>2</sub> was observed for the first time in a free-jet expansion, where it was prepared by ArF laser excitation of I<sub>2</sub>/Ar mixtures close to the nozzle<sup>a</sup>. Twenty-seven bands in the v<sub>0</sub> = 0 progression of the DN- A<sub>N</sub>transition were studied by laser excitation spectroscopy, leading to the following improved constants (cm<sup>-1</sup>) for the A<sub>N</sub>and DNstates:

$$B_0 = 0.028054, B_e = 0.020526, \omega_e = 5.3 \times 10^{-5}, \\ T_e = 103.953, T_{e,x} = 0.2097, T_{e,y} = 2.687 \times 10^{-4}.$$

Many bands of the  $\$$ - A transition have also been observed. These originate from A, v<sub>0</sub> = 0, and terminate on levels with 25#v<sub>N</sub>68 of the  $\$$ state. Full analyses of both band systems will be presented.

<sup>a</sup>J. Tellinghuisen, S. Fei, X. Zheng, and M.C. Heaven, Chem. Phys. Lett. 176, 373 (1991).

#### Scheduling information for Symposium office use only

Time required: 15, 10, or 5 min.

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### SESSION CATEGORIES\*

- |                                 |                           |   |
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| 1. Theory                       | 5. Jet and Beam           | 9. Mini-symposium: Recent Developments in FT Techniques   |
| 2. Electronic (UV/VIS/NIR)      | 6. Matrix/Condensed Phase | 10. Mini-symposium: Molecules and Star Formation          |
| 3. Infrared/Raman (Vibrational) | 7. Radicals and Ions      | 11. Mini-symposium: Photoionization/Photoelectron-Imaging |
| 4. Microwave (Rotational)       | 8. Atmospheric Species    |   |

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