

Title: _____

**LABORATORY OBSERVATIONS OF VISIBLE-UV OPTICAL EMISSIONS
IN THE INTERACTION OF FAST O(³P) ATOMS WITH HCN AND HYDRAZINES**

Optical emissions have been detected in the wavelength range 300-850 nm in the excitation of gas-phase and surface adsorbed HCN, N₂H₄, and CH₃NH-NH₂ by ground state atomic oxygen [O(³P)]. These species are thought to occur as unspent fuel in rocket exhausts. Use is made of the JPL atomic-oxygen (AO) facility. The AO is produced by dissociative electron attachment to NO to produce O⁻ ions. The ions are magnetically confined, accelerated to the desired final energy, and the electron laser-detached in a multiple-pass geometry to produce solely the O(³P) ground state. The laboratory energy of the AO in the present measurements is in the range 3-20 eV. Photons are collected from the (differentially-pumped) target region by a hemispherical concave mirror, and focused onto the entrance plane of a scanned, double-grating monochromator. The CN (A → X) and B → X transitions have been detected in gas-phase collisions with HCN; NH (A → X) in surface-adsorbed N₂H₄; and the transitions NH (A → X), CN (B → X) and CH(A → X) in gas-phase CH₃NH-NH₂. These results, as well as results on work currently in progress with unsymmetrical dimethylhydrazine [(CH₃)₂N-NH₂] will be presented.

It is always difficult to make a selection of papers based only on submitted abstracts. The Committee, therefore, requests that those submitting abstracts:

- (1) Also provide an outline of your paper in addition to the abstract;
- (2) Provide the following information attached to or within the abstract or outline:
 - (a) An indication that you have taken into account prior art in the area which your paper treats. You might cite two or three references to the latest papers representing information prior to your paper,
 - (b) A summary statement that clearly states the substance of your paper's contribution to the field, how it adds to existing technical information, or what's new and significant about the work. Also, indicate if the work is a new program, a continuing effort, or a completed program.
 - (c) (If your paper will be unclassified) Reasons why the Committee should select your paper over a classified paper; why it should not be submitted to other open meetings,
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