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Abstract Form I

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Kin F. Man

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Your abstract will be published in the program booklet. If you withdraw your paper, at least 4 months notice must be given prior to the meeting date, otherwise your abstract will be printed.

Kin F. Man, Said Boumsellek and Ara Chutjian
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ABSTRACT: Approximately 150 words. (1) TITLE OF PAPER, (2) Author's names and full addresses (UNDERLINE NAME OF PRIMARY SPEAKER), (3) Abstract. Single space all typing. SEE DETAILED INSTRUCTIONS ON REVERSE SIDE

Resonant Attachment Method for Trace Oxygen Detection:
Kin F. Man, Said Boumsellek and Ara Chutjian, Jet Propulsion Laboratory, California Institute of Technology, 4800 Oak Grove Drive, Pasadena, CA 91109.

Gaseous contaminants, such as oxygen and water vapor, are often present in containerless materials processing and in semiconductor device fabrication. Monitoring trace levels of these species in the chamber environment is therefore crucial to the success of the experiments. A new technique for detecting trace quantities of oxygen has been developed that utilizes the resonant electron dissociative attachment process. The electron attachment cross section for the e^-O_2 interaction to form O^- ions is greatly enhanced at the resonant energy (6.2 eV). A small gridded electron ionizer has been shown to be highly sensitive for measuring low concentrations of O_2 in N_2 using the method of standard additions. The lowest detection limit obtained was 1.2 kHz (O^- count rate) at a concentration of 10^{-10} (0.1 ppb).