

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Production of Molecular Oxygen using a Radio-Frequency Discharge in a Carbon Dioxide Gas Mixture¹ GEORGE BROOKE, GREG SCHWARTZ, Virginia Military Institute, Department of Physics and Astronomy — We have measured the concentration of molecular oxygen in a capacitively-coupled radio-frequency discharge in a carbon dioxide (CO₂) gas mixture. The gas mixture was composed of 95% CO₂ and was maintained at a pressure of approximately 5 torr in order to simulate Martian atmospheric conditions. Continuous-wave cavity ring-down spectroscopy was used to measure the absolute concentration of ground state molecular oxygen in the discharge volume using the b-X (1,0) transition. Our results will be compared to the measurements and a numerical model of another group[1].

[1] T.H. Dinh, Dissertation, Old Dominion University, Department of Physics (2002).

¹This work is supported by the Thomas F. Jeffress and Kate Miller Jeffress Memorial Trust

George Brooke
Virginia Military Institute, Department of Physics and Astronomy

Date submitted: 29 Nov 2006

Electronic form version 1.4