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Experimental Error in the Measurement of the Rate Constant of the Reaction of Methoxy (CH_3O) With Nitrogen Dioxide (NO_2).
MICHAEL E. KING, PRABHAKAR MISRA, Howard University*, Washington, DC. Time-resolved laser induced fluorescence (LIF) was used to measure the decay of excited methoxy radicals resulting from their reaction with NO_2 . The reaction rates were calculated from the decay times and from these and the partial pressures the reaction rate constant at a variety of temperatures was found. An Arrhenius plot of the reaction rate constant and Stern-Volmer plots were produced from the measured data and a discussion of the experimental results will be given. The experimental error involved in the procedure will be estimated and a propagation of errors analysis will be carried out and reported. Attempts to reduce experimental error will be discussed and an evaluation of the experimental methodology will be performed.

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