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Spectroscopy of Aluminum Monoxide in Flames D.M. SURMICK, A.C. WOODS, C.G. PARIGGER, University of Tennessee Space Institute, Tullahoma, TN, J. HEIGHT, A.B. DONALDSON, W. GILL, Sandia National Laboratories,* Albuquerque, NM — Application of optical spectroscopy is discussed in studies of combustion phenomena. Here we present recent experimental results from flame pool measurements. Analysis is accomplished using accurate line strength files. One of the goals of the current study is to infer temperature of combusting aluminum particles from the $B\,^2\Sigma^+ \rightarrow X\,^2\Sigma^+$ transition of aluminum monoxide (AlO). An indicator of aluminum combustion is presence of AlO bands. The temperature of the flame for various positions is determined by fitting measured with computed spectra. Moreover, the background radiation is modeled using grey-body rather than standard black-body emissions. Computational efforts include comparisons of results from fitting diatomic AlO with results from fitting broadband background emissions.

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