

Abstract Submitted  
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**Two-Color Pyrometry with Diesel Combustion** KATHARINE BURN, Utah State University, JOSHUA BITTLE, University of Alabama — Diesel combustion lasts only milliseconds and takes place inside a closed engine cylinder. Because of this, the mixing and subsequent combustion processes are still not completely understood. Using optically accessible experimental apparatuses and various highspeed optical diagnostic techniques can give insight into the effects of different types of fuels on their subsequent combustion. Two-color pyrometry is an example of such techniques, and has been proven to give accurate temperature measurements of a flame while requiring no physical contact with the surface of interest. A two-color pyrometer has been designed, built, and tested with a Bunsen burner, with the intent of applying the pyrometer to a combustion spray chamber in the future. Initial testing has been made at various fuel rates using a controlled Bunsen burner flame. Temperature maps have been generated from the pyrometer images showing trends that flames with higher fuel flow rates burned at lower mean temperatures. A preliminary video of diesel spray has been captured, showing that future application to diesel combustion is possible with the pyrometer setup.

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