



## Laser-Induced Fluorescence and Performance Analysis of the Ultra-Compact Combuster

By Patrick J. Lakusta

Biblioscholar Nov 2012, 2012. Taschenbuch. Book Condition: Neu. 246x189x10 mm. This item is printed on demand - Print on Demand Neuware - The AFIT Combustion Optimization and Analysis Laser (COAL) lab's modular design and precision diagnostic systems make it an important facility for analying combustion processes. The objectives of this research are to install lab enhancements, validate the laser diagnostic system, characterize the igniter for AFIT's Ultra-Compact Combustor (UCC) sections, and perform a laser diagnostic, performance, and video analysis of a flat-cavity UCC section. Laser system validation was accomplished using OH Planar Laser-Induced Fluorescence (PLIF) in a laminar hydrogen-air flame produced by a Hencken burner. Results are compared to previous research. Ratios of intensities and excitation scans in the OH (A-X) (1-0) electronic transition system are used to measure temperature and species concentrations. Igniter characterization was accomplished using open-air flammability and flame height observations to select an operating condition and validated by attaching the igniter to the UCC section. An operating procedure is recommended. 172 pp. Englisch.



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