

EXPERIMENTAL MEASUREMENTS OF FLAME TRANSFER FUNCTION

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In order to conform to pollutant-related legislations and minimize NO_x emissions, modern household boilers and central heating systems are moving towards premixed combustors. These combustors have been very successful with regards to emissions along with thermal efficiency. However, their implementation has been associated with acoustical instability problems that are best solved through precise design optimization rather than trial and error experimentation.

This poster introduces an experimental setup which is designed to investigate and study, acoustic instability at the flame level. The methodology is an experimental determination of the Flame Transfer Function and comparison of the experimental data with a theoretical model of the flame-burner. A procedure is designed to diagnose the origins of the combustion instabilities by measurement of the Flame Transfer Function experimentally. The experimental setup provides an improved assessment of the acoustic instability problem for industrial applications.