NUMERICAL STUDY OF LOW EMISSION GAS TURBINE COMBUSTOR CONCEPTS

Final Technical Report

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To further reduce pollutant emissions, such as CO, NOx, UHCs, etc., in the next few decades, innovative concepts of gas turbine combustors must be developed. Several concepts, such as the LPP (Lean-Premixed-Prevaporized), RQL (Rich-Burn Quick-Quench Lean-Burn), and LDI (Lean-Direct-Injection), have been under study for many years. To fully realize the potential of these concepts, several improvements, such as inlet geometry, air swirler, aerothermochemistry control, fuel preparation, fuel injection and injector design, etc., must be made, which can be studied through the experimental method and/or the numerical technique. The purpose of this proposal is to use the CFD technique to study, and hence, to guide the design process for low emission gas turbine combustors. A total of 13 technical papers have been (or will be) published.
ACHIEVEMENTS

During the course of this research, many technical papers have been published and are listed below for the consideration as the project final technical report:


