

Turbine Efficiency Improvements by “Hot Streaks” Mitigation

Michael Dunn

Professor, Aerospace Engineering and Aviation

Professor, Mechanical Engineering, Columbus, OH

Telephone: 614/292-5015, Fax 614/292-5552, email: dunn.129@osu.edu

Abstract

Combustors have “hot streaks” that migrate through the turbine section. Current turbine design uses over-design turbine cooling or sub-optimal air/fuel ratios to avoid turbine blade failure. OSU’s research effort is developing a revolutionary approach for the physical characterization of hot streak migration.

The OSU work in a NASA-sponsored university consortium will also yield materials and methods to mitigate the effects of hot streaks, allowing turbine design improvements to improve combustion and cycle efficiencies--- both of which are beneficial to V21 designs that use turbine topping cycles.