



# DEPARTMENT OF MECHANICAL ENGINEERING Purdue School of Engineering and Technology

## FALL 2002 SEMINAR SERIES

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**Date: Thursday, August 29, 2002**

**Time: 11:00 - 12:00 am**

**Room: SL 165**

**Reception at 10:45 am.**

**Cookies and coffee served. Everyone is invited**

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### *Low-Emission Combustion for Industrial Gas Turbine Engines*

**Dr. Jushan Chin**

*Rolls Royce Corporation*

*Indianapolis, IN*

The discussion will start with a question: what do regulations define as pollutants? Then what are requirements? As the reduction of both NO<sub>x</sub> and CO creates contradictory requirements, what is the window to satisfy both. In order to control emissions, it is necessary to understand their formation. The discussion will focus on technical approaches to control these emissions, with stress on lean premixed combustion, particularly, on major technical obstacles. The discussion will include why some other institutions do have trouble on these technical obstacles, such as auto-ignition, flashback, combustion instability. Discussion will cover control on high power condition, control on low power condition, fuel staging, cooling, and dual-fuel capability for industrial combustors.

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Dr. Chin worked with the famous gas turbine combustor doyen, Dr. Arthur Lefebvre, for many years beginning in 1973, at Cranfield Institute of Technology in England and at Purdue University. Dr. Chin has been a Staff Research Engineer at Rolls Royce (Allison) for the past ten years. He is an Associate Fellow of AIAA and a well-known expert in the gas turbine combustion area.

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