

# **Aerodynamic study of combustor using axial swirler**

## **Abstract**

A study has been conducted to investigate the flow pattern in a gas turbine combustion chamber by simulation and experimental approaches. Flow pattern inside a combustor is important to self sustain the flame, increase mixing of air and fuel and combustion intensity. Aerodynamically curved vanes allow the incoming axial flow to turn gradually. This inhibits flow separation on the suction side of the vane. Thus, more complete turning and higher swirl and radial-velocity components can be generated at the swirler exit, with the added advantage of lower pressure loss. The swirl number was varied from 0.48, 0.83 and 1.43. The highest swirl number of 1.43 for axial swirler is capable to create a clear reversal mass flow rate zone.