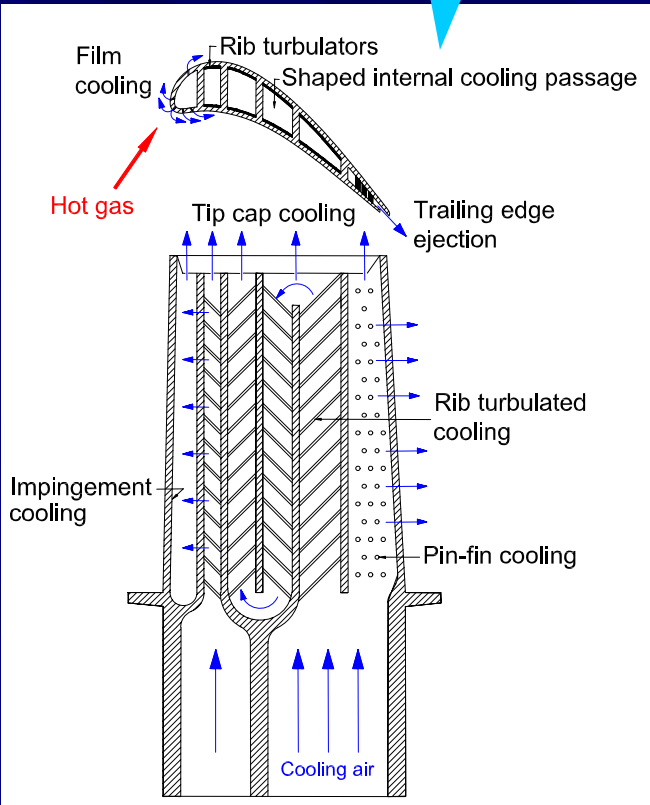


Rotating Heat Transfer in High Aspect Ratio Rectangular Cooling Passages with Shaped Turbulators

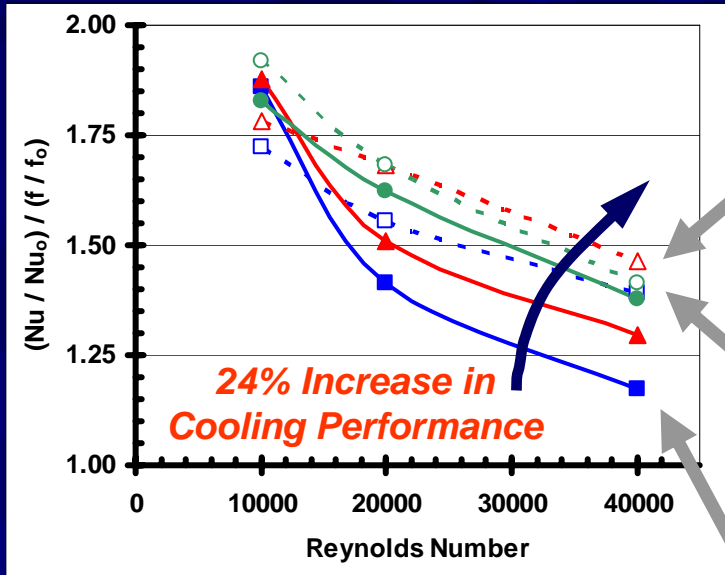
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Texas A&M University, J.C. Han



Cooled, High Pressure Turbine Blade



Typical Internal Cooling Technology



- Parallel V
- Discrete V
- Parallel W
- Discrete W
- Parallel Angled
- Discrete Angled

Proposed V & W Shaped Ribs Provide Better Cooling Performance than the Current Angled Ribs

- Increased Cooling Performance
- Decreased Cooling Air
- Increased Turbine Inlet Temperature
- Increased Engine Efficiency

Results Have Been Solicited by GE, Siemens-Westinghouse, and Solar Turbines