

# SPAN-WISE MIXING IN A MULTI-STAGE COMPRESSOR

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- Phenomena that have eluded gas turbine designers include the effects of rotor-stator interactions and the physics of mixing of velocity, pressure, temperature and velocity fields.
- Compressor tests were conducted in a three stage compressor where deterministic unsteadiness and random fluctuations causing spanwise mixing are realistically replicated . This provided valuable information on rotor stator interaction effects and the nature of the unsteadiness.
- This investigation provided results that are extremely helpful in improving computer predictions of compressor flow and performance using RANS (Reynolds Averaged Navier-Stokes equations) .
- Multi-stage compressor energy efficiency improvements are only possible by careful implementation of spanwise mixing models into modern CFD codes (Computational Fluid Dynamics) .

