



14. XJTU; Xi'an Jiaotong University

西安交通大学

GRAIN2

Contributions to GRAIN2

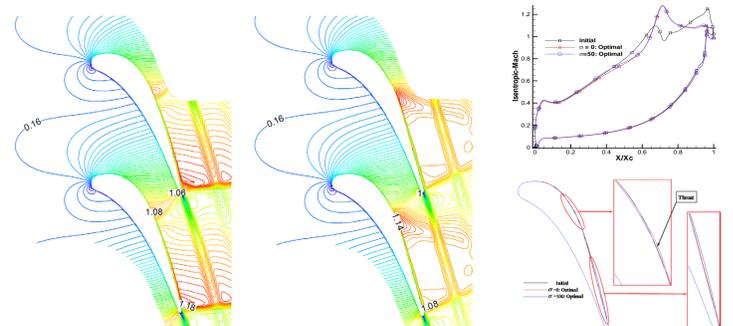
KGT1 contributor

XJTU – Xi'an Jiaotong University:

- National key university founded in 1896 and moved to Xi'an in 1956, administered by MOE China
- A C9 league and comprehensive research university with a major emphasis on science and engineering.

Technical contribution:

- KGT1; Propulsion Related Green Technologies.
 - Multidisciplinary and multiobjective optimization design for turbine blade and through flow path

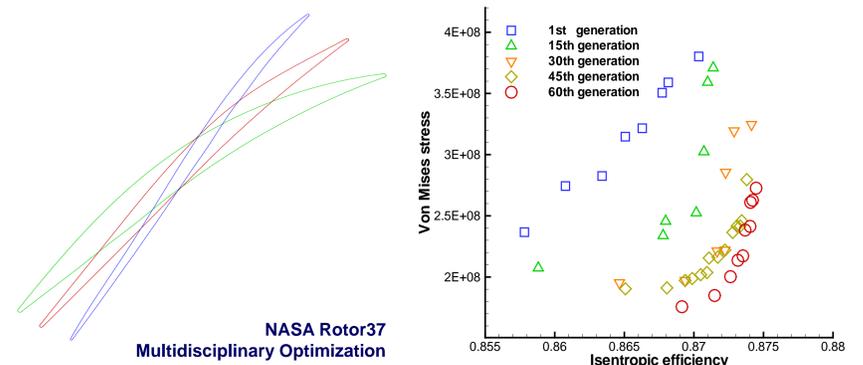


Projects:

- Aerodynamic optimization design method for turbomachinery cascades based on control theory, NSFC.
- Study on aerodynamic optimization design for turbomachinery cascades based on the discrete adjoint method, NSFC.
- Multidisciplinary optimization theory and method for high temperature blades based on reliability analysis and knowledge mining, NSFC.
- Study on cooling mechanism of hot parts of gas turbines, 973.
- Aerodynamic inverse design and optimal design for turbomachinery cascades, AVIC
- Study on unsteady flow and heat transfer mechanism in multistage gas turbine considering hot streak and cooling air mixing, NSFC.

Future activities:

- Multidisciplinary and multiobjective optimization design for high temperature blades of HP turbine stage of aero engine.
- Multidisciplinary optimization method for LP turbine multistage cascades - both for aerodynamic performance and weight control.
- Prediction and multidisciplinary optimization of fluid-structure interactions for noise reduction.
- Analysis of lattice structure and materials.



Selected Publications:

- Aerodynamic inverse design optimization for turbine cascades based on control theory, Science CHINA Technological Sciences, 2013, 56(2):308-323
- A Study on multidisciplinary optimization of an axial compressor blade based on evolutionary algorithms, ASME Journal of Turbomachinery, 2012, 134(5): 054501
- Automated multi-objective and multidisciplinary design optimization of a transonic turbine stage. Proc. IMechE, Part A: Journal of Power and Energy, 2012, 226(2): 262-276.
- 2D viscous aerodynamic shape design optimization for turbine blades based on adjoint method, ASME Journal of Turbomachinery, 2011, 133(3):031014
- Investigation of leakage flow and heat transfer in a gas turbine blade tip with emphasis on the effect of rotation, ASME Journal of Turbomachinery, 2010, 132(4): 041010

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