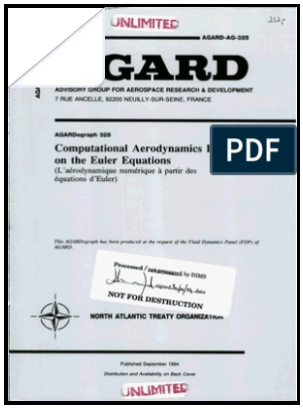
High-lift system aerodynamics - papers presented and discussions recorded at the 71st Fluid Dynamics Panel Meeting and at the Symposium held in Banff, Alberta, Canada, from 5th-8th October 1992.

AGARD - Review on High



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Review on High

The model is derived from that of Lardeau and Leschziner, which was originally formulated to predict bypass transition for attached flows, subject to a wide range of free-stream turbulence intensity.

Review on High

This set-up consisted of a two-dimensional wing, which could traverse through the porous turntables located at the end plates. . A RANS solver is used to guide the redesign process.

Review on High

The analysis covers steady as well as unsteady cases characterized by different actuator frequencies. A particular attention has been devoted to the treatment of crucial boundary conditions like the freestream turbulence intensity and the turbulent length scale.

High Lift Aerodynamics Research Papers

The results from both numerical and experimental work show that the serrated trailing edge can improve the flow over the flap by delaying turbulent separation consequently decreasing pressure drag. The front-loaded T108 cascade is analyzed in high speed, low freestream turbulence conditions. Nevertheless, CFD techniques still face some major challenges that in some cases can only be solved through experimentation.

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The data evaluated were plots of distributions of Cp vs. The proposed approach is based on solving an additional transport equation for the so-called laminar kinetic energy, which allows the increase of the non-turbulent fluctuations in the pre-transitional and transitional region to be taken into account. The study has been carried out using a novel, transition-sensitive, turbulence model.

High Lift Aerodynamics Research Papers

The aft-loaded T106C cascade is studied in both high and low speed conditions for several expansion ratios and inlet freestream turbulence values. The analyzed Reynolds number values span the whole range typically encountered in aeroengines low-pressure turbines operations, and both steady and periodically unsteady inflow conditions were considered. The comparison between high and low speed profiles is carried out, over a wide range of Reynolds numbers, by using a novel three-equation, transition-sensitive, turbulence model.

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A particular attention has been devoted to the treatment of crucial boundary conditions like the freestream turbulence intensity and the turbulent length scale.

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