

Working Table of Contents

Abstract	
Acknowledgments	
Nomenclature	
List of Figures	
List of Tables.....	
1 Introduction	
2 Literature Review	
2.1 Effect of Boundary Layer Thickness on Secondary Flows	
2.2 Effect of Temperature Gradients on Secondary Flows.....	
3 Theoretical Analysis of Secondary Flows.....	
3.1 Theoretical Development of Classical Secondary Flow.....	
3.2 Effects of Compression and Viscosity on Classical Secondary Flow	
3.3 Methods of Predicting Secondary Losses at the Endwall.....	
4 Computational Methods	
4.1 Computational Domain.....	
4.2 Meshing Procedures.....	
4.3 Numerical Simulation Techniques.....	
4.4 Computing Resources	
5 Experimental Design and Flowfield Measurements	
5.1 Test Section Design	
5.2 Cascade Inlet Flowfield	
5.3 Instrumentation and Flowfield Measurement Techniques.....	

6 CFD Benchmarking.....

 6.1 CFD Analysis Methods and Definitions.....

 6.2 Grid Independence Study.....

 6.3 Comparison of Turbulence Models

 6.4 Leading Edge Region.....

7 Experimental and Computational Results

 7.1 Low-Speed Parametric Study

 7.2 High-Speed Engine Conditions

 7.3 Comparison of Low-Speed and High-Speed Conditions.....

8 Conclusions and Future Work.....

 8.1 CFD Benchmarking

 8.2 Flowfield Measurements.....

 8.3 Parametric Study and Engine Simulations.....

 8.4 Recommendations for Future Work

Appendix A: Data for Stator Vane Geometry.....

Appendix B: Uncertainty Analysis Calculations

Glossary.....

References