ABSTRACT

This graduation thesis delves into a comprehensive numerical investigation aims to enhance various heat transfer mechanisms in gas turbines through innovative approaches. This study employs advanced computational methods to analyze and optimize heat transfer processes within different configurations of gas turbine blades, with a particular emphasis on improving efficiency and performance and prolonging the lifespan of gas turbine components.

The research begins by explanation of the current state of heat transfer enhancement strategies in gas turbines and identifying gaps in existing knowledge and methods. Subsequently, innovative mechanisms are proposed and meticulously evaluated using numerical simulations. The focus of this study extends in combination of conventional methods, exploring innovative techniques in these methods to have the potential to revolutionize heat transfer augmentation in gas turbine applications.

While the current research does not showcase outcomes it offers perspectives on the feasibility and efficacy of the suggested approaches. These perspectives lay the groundwork, for the phase of the study, where numerical simulations will produce findings.