

## **Dr. Nuri Kayansayan's Research interest**

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### **Present research work:**

#### ***1. Flow and Thermal Characteristics of Airflow in a Refrigerated Container***

This research is financial supported by the ministry of Science and Technology of Turkey. The flow behavior of air in the refrigerated container is to be investigated numerically and experimentally. In doing so, the container is considered to be empty in one case and fully loaded in another. In the numerical analysis, Ansys-Fluent software program has been used, and a scale-down prototype of the container is built in the laboratory for experimental analysis. Two papers in this subject have already been presented at HEFAT2014 conference in Orlando, Florida titled as following:

a.Kayansayan, N.,Alptekin, E., and Ezan, M.A., *Flow and thermal characteristics of airflow inside a refrigerated container*, HEFAT2014, July 2014, Florida.

b.Kayansayan, N., Ezan, M.A., Alptekin, E., and Yildiz, A., *Experimental analysis of refrigerated truck thermal behavior*, HEFAT2014, July 2014, Florida.

#### ***2. Impingement Cooling of Curved Surfaces by Two-Dimensional Air Jets***

Cooling of curved surfaces by air impingement has recently been interest of many researchers. This study considers cooling of a curved surface by air jets efflux through multiple 2-D slots and analyzes numerically and experimentally thermal characteristics of the flow. In numerical part of work, interaction of jets issuing from the slots and the flow structure at downstream region will be analyzed by using ANSYS-FLUENT software.

### **Thermal Design of heat exchangers**

- Fluid flow and heat transfer measurements*
- Thermal characterization of finned surface geometry for forced and for natural convection*

Research work in these topics has been previously done and published by me.

### **Impinging flows**

- Mathematical modeling of axi-symmetric and 2-D jet flows
- Thermal characteristics of wall jet flows

My dissertation is in this subject and beyond this work; impingement on curve surfaces by a single jet is also studied numerically and experimentally by a graduate PHD student supervised by me. The results are also published as a journal paper.

### **Phase change heat transfer (thermal energy storage)**

- Solidification on finned surfaces
- Thermal design of phase change energy storage units

Energy storage by phase change has always been a subject of attraction, and a PHD student of mine worked and completed his dissertation in this subject. The outcome of his work is published as a journal paper.