

Accepted Manuscript

Title: Computational thermal analysis of cylindrical fin design parameters and a new methodology for defining fin structure in LED automobile headlamp cooling applications

Author: Kemal Furkan Sökmen, Emrah Yürüklü, Nurettin Yamankaradeniz

PII: S1359-4311(15)01116-3

DOI: <http://dx.doi.org/doi:10.1016/j.applthermaleng.2015.10.069>

Reference: ATE 7186

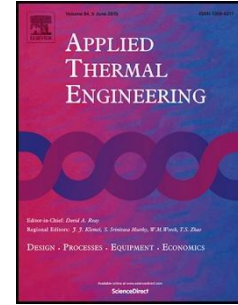
To appear in: *Applied Thermal Engineering*

Received date: 27-7-2015

Accepted date: 15-10-2015

Please cite this article as: Kemal Furkan Sökmen, Emrah Yürüklü, Nurettin Yamankaradeniz, Computational thermal analysis of cylindrical fin design parameters and a new methodology for defining fin structure in LED automobile headlamp cooling applications, *Applied Thermal Engineering* (2015), <http://dx.doi.org/doi:10.1016/j.applthermaleng.2015.10.069>.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



**COMPUTATIONAL THERMAL ANALYSIS
OF CYLINDRICAL FIN DESIGN PARAMETERS AND A NEW
METHODOLOGY FOR DEFINING FIN STRUCTURE
IN LED AUTOMOBILE HEADLAMP COOLING APPLICATIONS**

Kemal Furkan SÖKMEN¹, Emrah YÜRÜKLÜ^{2,*}, Nurettin YAMANKARADENİZ³

¹ *Department of Mechanical Engineering, Faculty of Natural Sciences, Architecture and Engineering, Bursa Technical University, 16190, Osmangazi, Bursa, Turkey. furkan.sokmen@btu.edu.tr*

² *Department of Electrical&Electronic Engineering, Faculty of Engineering, Bursa Orhangazi University, 16310, Yildirim, Bursa, Turkey. emrah.yuruklu@bou.edu.tr*

³ *Program of Air-Conditioning and Refrigeration, Vocational. School of Technical Sciences, Uludag University, 16059, Osmangazi, Bursa, Turkey. nyk@uludag.edu.tr*

* *Corresponding Author*

HIGHLIGHTS

- In the study, cooling of LED headlamps in automotive is investigated.
- The study is based on free convection cooling of LED module.
- Besides of free convection, Monte Carlo model is used as radiation model as well.
- A new algorithm is presented for designing optimum fin structure.
- Suggested algorithm for optimum design is verified by various simulations.

Download English Version:

<https://daneshyari.com/en/article/644808>

Download Persian Version:

<https://daneshyari.com/article/644808>

[Daneshyari.com](https://daneshyari.com)