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PARTICIPATION

Razik Benderradji

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Filled with Hybrid Nano-Fluid: A Numerical Approach*

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INTRODUCTION

We had the great honor of organizing 6th International Conference on Applied Engineering and Natural Sciences ICAENS 2024. It was truly a great pleasure for us to greet a lot of participants from many different countries attending ICAENS 2024! We firmly believe that the conference will become an important international event in the field of cross-industry discussion about innovations in Academic Studies.

Three cooperating organizations supported the two-day conference. There were 301 papers accepted for presentation at ICAENS 2024, contributed from different countries. We had plenary speeches and several well-known scientists and experts, to give invited talks at different sessions.

The purpose of ICAENS 2024 was to provide a forum for the participants to report and review innovative ideas, with up-to-date progress and developments, and discuss novel approaches to the application in the field of their own research areas and discuss challenges of doing science.

We sincerely hope that the exchange of ideas on doing research, science and improving education will help the participants, and international cooperation sharing the common interest will be enhanced.

On behalf the Organization Committee of ICAENS 2024, we would like to heartily thank our cooperating organizations for all they have done for the conference. We would also like to thank the authors for their contribution to the proceedings; the participants and friends of ICAENS 2024, for their interest and efforts in helping us to make the conference possible; and the Editorial boards for their effective work and valuable advice, especially the ICAENS 2024 secretariat and the ICAENS 2024 staff, for their tireless efforts and outstanding services in preparing the conference and publishing the Proceedings.

Publisher: All Sciences Academy



Analysis of Heat Transfer by Mixed Convection in a Ventilated Cavity Filled with Hybrid Nano-Fluid: A Numerical Approach

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Abstract – In this numerical study, the focus was on analyzing the heat transfer by mixed convection in a ventilated cavity filled with a hybrid nano-fluid. The hybrid nano-fluid consists of nano-particles (copper (Cu) and alumina (Al₂O₃)) dispersed in a base fluid (water). The volume fraction of nano-particles is 4 %. The cavity housed a cold cylinder at its center and incorporated two gates (orifices) for the influx and efflux of the flow., with a fixed Reynolds number (Re) and varying Richardson numbers (Ri) set at 0.1, 1, 10, and 100. The cavity was subjected to isothermal heating by a heat source on the lower wall to maintain a constant temperature, while the remaining walls were kept adiabatic. The ventilated cavity is subjected to mixed convection, where both natural convection and forced convection effects are considered. The governing equations for the stationary laminar flow were solved numerically using the finite volume method. The numerical results revealed the significant impact of Ri on heat transfer within the ventilated cavity. Consequently, the heat transfer rate (expressed by Nusselt number Nu) demonstrated an upward trend with increasing Ri values. Overall, the results of this study were provide valuable insights for understanding the behavior and performance of systems that utilize hybrid nano-fluids in applications such as microelectronics cooling, heat exchangers, and energy storage devices.

Keywords – Heat transfer, Mixed convection, Ventilated cavity, Hybrid nano-fluid, Richardson number

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**6TH INTERNATIONAL CONFERENCE
ON APPLIED ENGINEERING AND
NATURAL SCIENCES ICAENS 2024
SEPTEMBER 25-26, 2024**

04.10.2024

25-26 Eylül 2024 tarihlerinde MEET üzerinden çevrimiçi olarak gerçekleştirilen 6th International Conference on Applied Engineering and Natural Sciences ICAENS 2024 konferansı akademik teşvik yönetmeliğinin 9. Maddesine istinaden “Tebliğlerin sunulduğu yurt içinde veya yurt dışındaki etkinliğin uluslararası olarak nitelendirilebilmesi için Türkiye dışında en az beş farklı ülkeden sözlü tebliğ sunan konuşmacının katılım sağlaması ve tebliğlerin yarıdan fazlasının Türkiye dışından katılımcılar tarafından sunulması esastır.” kriterlerini sağlamaktadır. Toplam 301 adet bildirinin yer aldığı kongre iki gün boyunca çevrimiçi olarak gerçekleştirilmiştir.

Türkiye dışından toplam 23 farklı ülkeden (Fas, Cezayir, Tunus, Suudi Arabistan, Litvanya, Irak, Azerbaycan, Birleşik Krallık, Pakistan, Malezya, Kosova, Çin, Nijerya, Brezilya, Portekiz, Hindistan, Arnavutluk, Macaristan, Fransa, Rusya, Sırbistan, Polonya, İtalya) katılım sağlanmış olup, 301 adet bildirinin 171 (%56,81) tanesi yabancı katılımcı tarafından sunulmuştur.

Kongremize ilginiz için teşekkür ederiz.

Saygılarımızla,



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**6TH INTERNATIONAL CONFERENCE
ON APPLIED ENGINEERING AND
NATURAL SCIENCES ICAENS 2024
SEPTEMBER 25-26, 2024**

04.10.2024

25-26 Eylül 2024 tarihlerinde MEET üzerinden çevrimiçi olarak gerçekleştirilen 6th International Conference on Applied Engineering and Natural Sciences ICAENS 2024 konferansı MART DÖNEMİ DOÇENTLİK BAŞVURU ŞARTLARI yönetmeliğinin 2. bölümde yer alan Uluslararası Bilimsel Toplantı tanımlaması “Farklı ülkelerden bilim insanlarının bilim kurulunda bulunduğu ve sunumların bilimsel ön incelemeden geçirilerek kabul edildiği toplantı.” şeklindedir.

6TH ICAENS 2024 konferansı bilimsel komitesinin çoğunluğu yabancı bilim insanlarından oluşmaktadır. Aşağıdaki link ile bilimsel komite incelenebilir:

<https://www.icaens.org/com>

Ayrıca konferansımızda hakem değerlendirmesi olup hakem değerlendirmesi olumlu sonuçlanmadan ücret talebinde bulunulmamaktadır.

2024 MART DÖNEMİ DOÇENTLİK BAŞVURU ŞARTLARI yönetmeliğinin 8. bölümde yer alan Bilimsel Toplantı tanımlamasının b bendindeki “Diğer Uluslararası/Ulusal bilimsel toplantının düzenlenme komitesinde, kurum/tüzel kişilik/karar organı tarafından resmi olarak görevlendirilmiş üniversite/enstitü/bilimsel kurum/branş derneği akademisyen temsilcisi bulunması zorunludur.” şeklindedir.

6TH ICAENS 2024 konferansı düzenleme komitesinde farklı kurumlar tarafından görevlendirilmiş birden fazla üniversiteden akademik temsilciler bulunmaktadır. Aşağıdaki link ile düzenleme komitesindeki akademik temsilcilerin görevlendirme yazıları incelenebilir:

<https://drive.google.com/file/d/1eZalxRl8q6-eXATZzwUraH9KOhtQzFho/view>

Ayrıca görevlendirme yazıları ilgili konferansın özet ve tam metin kitapçıklarında yer almaktadır.

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All Sciences Academy



04.09.2023

LETTER OF ASSIGNMENT

We confirm that Ing. Ondrej Takáč, PhD. working at J. Selye University takes part in the organization committee of the conferences organized by of All Sciences Academy.

Confirmation of the Vice Dean of the Faculty of Economics and Informatics

Name of Responsible Person and Signature:

Name and Surname

Sign:

PhDr. Imrich Antalík, PhD.

Date: 04.09.2023

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04.09.2023

LETTER OF ASSIGNMENT

We confirm that PaedDr. Ladislav Végh, PhD. working at J. Selye University takes part in the organization committee of the conferences organized by of All Sciences Academy.

Confirmation of the Vice Dean of the Faculty of Economics and Informatics

Name of Responsible Person and Signature:

Name and Surname

Sign:

PhDr. Imrich Antalík, PhD.

Date: 04.09.2023

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16.08.2023

LETTER OF ASSIGNMENT

We confirm that Prof. Assoc. Dr. Admir Jançe, who is employed full-time as a lecturer, as well as holding the position of Head of the Imaging Department and Vice Dean of the Faculty of Technical Medical Sciences, takes part in the organization committee of the conferences organized by of All Sciences Academy.

Confirmation of the Rector/Dean/Vice Dean/Head of Department

Name of Responsible Person and Signature:

Rector: Prof. Dr. Tonin GJURAJ



Date: 16.08.2023

15.09.2023

İlgili Makama

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Gereğini rica ederim.

Ad ve Soyad

Prof. Dr. Adem YILMAZ

Dekan

Tarih 15.09.2023

İmza:

Prof.Dr. Adem YILMAZ
DEKAN

15.09.2023

İlgili Makama

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Prof. Dr. Adem YILMAZ	
Dekan	Prof.Dr. Adem YILMAZ
Tarih 15.09.2023	DEKAN



04.09.2023

LETTER OF ASSIGNMENT

We confirm that PaedDr. Krisztina Czakóová, PhD. working at J. Selye University takes part in the organization committee of the conferences organized by of All Sciences Academy.

Confirmation of the Vice Dean of the Faculty of Economics and Informatics

Name of Responsible Person and Signature:

Name and Surname

Sign:

PhDr. Imrich Antalík, PhD.

Date: 04.09.2023

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01.11.2023

İLGİLİ MAKAMA

İlgi : Öğretim Üyesi Doç. Dr. Nermin KİŞİ'nin 30.10.2023 tarihli dilekçesi.

Yüksekokulumuz Yönetim ve Organizasyon Bölümü Öğretim Üyesi Doç. Dr. Nermin KİŞİ'nin "All Sciences Academy Yayınevi"nin düzenleyeceği bilimsel toplantıların düzenleme ve bilim kurullarında görev almasında Yüksekokulumuzca bir sakınca bulunmamaktadır. İş bu belge ilgilinin isteği üzerine tanzim edilmiştir.

Bilgilerinizi ve gereğini rica/arz ederim.

Doç. Dr. Hikmet YAZICI
Meslek Yüksekokulu Müdürü

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