



همایش بین المللی علوم و فناوری نانو
**International Conference on
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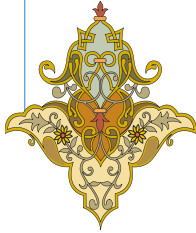
المؤتمر الدولي لتكنولوجيا و علوم النانو

30th December, 2020, University of Tehran, Iran

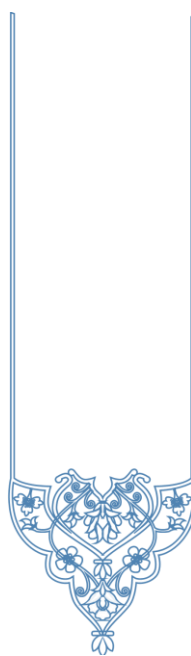
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رسالة محمد ﷺ



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Organizer

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Conference Head Message



Prof. Dr. Zahra Emam Djomah
Head of Aras Intl. Campus,
University of Tehran &
Conference Head

It is my pleasure to **welcome** all the participants to **The International Conference on Nanotechnology and Nanosciences, 2020**. I **welcome** all the eminent participants from different countries who share their knowledge and vast experience with their peers.

I will give you some information about the University of Tehran and nanotechnology in Iran.

History of University of Tehran

Rooted in Jondi Shapur University, which goes back over 2,000 years, the University of Tehran, in its traditional form, was established seven centuries ago. It was founded firstly in religious seminaries ("Houza" or traditional religious schools). Other than religious studies, education covered mathematics, astronomy, medicine, literature, biology, physics, and chemistry. During the modern era, the University of Tehran evolved from a religious structure to a more modern and academic higher education structure. Dar-ol-Fonoon College was the first engineering school in its modern form, which was established almost a century ago. This was 20 years before the establishment of similar colleges in Tokyo (Japan). The University of Tehran was inaugurated in the winter of 1934.



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The academic staff of the University consists of 1,650 full-time faculty members and several hundred part-time and adjunct professors and affiliated members. The University of Tehran has a broad range of international adjunct faculty members. The University also employs 3,000 personnel who work at different offices, institutes, and centers.

The University has 19,000 undergraduate and 13,000 graduate students. The University has six colleges with 39 faculties and 120 departments at its 7 campuses located in Tehran, Qom, Karaj, and its Aras International Campus (in Jolfa in Tabriz province) and Kish International Campus (in Kish Island). The University of Tehran, as the leading research university in the Country, offers more than 300 postgraduate programs.

Fifteen percent of the Country's Centers of Excellence, as recognized by the government, are located at the University of Tehran, which, along with more than 40 research centers, ensure UT's commitment to research. Together, over 3,500 laboratories are active in these centers and the faculties. Besides, the University of Tehran publishes more than 50 scientific journals, some of which have the ISI index.

Nanotechnology in Iran

According to the Web of Science, Iran ranks fourth in nanotechnology globally by publishing 8,791 articles in the field. As per the latest updates, Iran holds fourth place above countries such as South Korea, Germany, Japan, and France. With the staggering number of 56,648 articles, China tops the list while the United States and India came in second and third places.

Iran's first researches in this field started in 2000, and by publishing nine articles, the Country achieved the rank of 52 in that year.



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The national nanotechnology development headquarters was established in 2005 to make policies, assess nanotechnology achievements, raise public awareness about nanoscience, improve quality of life, and create lucrative markets.



Recognizing the great importance of nanotechnology, Iranians have had boosted researches in the field year on year. There are 257 companies active in this field, 33 percent working on nanomaterials, and ISNA reported on Tuesday. These companies have manufactured 376 different products using the nanotechnology, showing that this is a field with huge economic and practical advantages. The reports also demonstrate that these products are being exported to 47 different countries.



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Introduction Aras International Campus (AIC)

In order to implement the provisions of the Memorandum of Understanding signed between the University of Tehran and the Free Trade and Industrial zone Organization of Aras in 2007, the necessary steps were taken to establish the Aras International campus in the Aras Free Zone, in 2009 and after completing the necessary preparations and equipping the educational and administrative space, as well as obtaining a license from the Office for the Development of Higher Education in the Ministry of Science, Research and Technology, for the second half of the academic year 2010-2011, the students were admitted. Aras International Campus began its preparations for student admission in September 2010. After establishing the departments and attracting needed colleagues, and preparing facilities and research and educational spaces, AIC began to accept students in the second half of the academic year 2010-2011 in 9 master's degrees. And so far, more than 1,000 students have enrolled in 37 master's degrees and about 180 students in 27 areas of interest and doctoral degrees. Up to now, more than 1,000 of them have defended and graduated from their master's and doctoral theses.



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**Natural Convection in Isosceles Triangular Cavity
Utilizing Nanofluid with Cooled Sides and Discretely
Heated Base**

Khalid B. Saleem¹, Rafid J. Mohammed², Ghassan F. Smaisim³

Abstract

The current paper intends to analyze the natural convective flow of Cu-water nanofluid within isosceles triangular-shaped cavity cooled from sides with the air stream, while its base experiences discrete heating. The finite volume procedure is utilized to handle the governing equations numerically. The outcomes are predicted with numerous scopes of non-dimensional heater length ($L/H=0.25, 0.5,$ and 1), Rayleigh Number ($Ra=10^4, 10^5,$ and 10^6), nanoparticles volume fraction ($\phi=0,0.03,0.06$ and 0.09), and free stream Reynolds number ($Re_\infty=10^2, 10^3, 10^4$ and 10^5). The impact of preceding variables is shown on the isotherms (θ), stream function (ψ), and average Nusselt number (Nu_{avg}) on the heated base. The results show an enhancement in heat transfer rate as $Ra, L/H, Re_\infty$ and ϕ enlarges. Also, as Ra rises, additional secondary vortices formed within the cavity, and ϕ impact is more pronounced at the higher Ra (i.e. $Ra=10^6$).

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Keywords

Natural Convection; Nanofluid; Free Stream; Triangular Cavity

