

People's Democratic Republic of Algeria
Ministry of Higher Education and Scientific Research
Ecole Normale Superior of Ouargla
Department of Science exact

CERTIFICATE OF PARTICIPATION

This is to certify that

KHALFALLAH Fares

Participated in the "THE 1ST INTERNATIONAL CONFERENCE ON RENEWABLE MATERIALS AND ENERGIES ICRME2022 October 26-27, 2022, OUARGLA-ALGERIA" with **POSTER** presentation entitled:

NUMERICAL STUDY OF HEAT TRANSFER BY MIXED CONVECTION IN A VENTILATED CAVITY FILLED WITH HYBRID NANO-FLUID

Co-authors: BENDERRADJI Razik, BRAHIMI Meryem, AOUACHE Elhadj



Président de ICRME 2022

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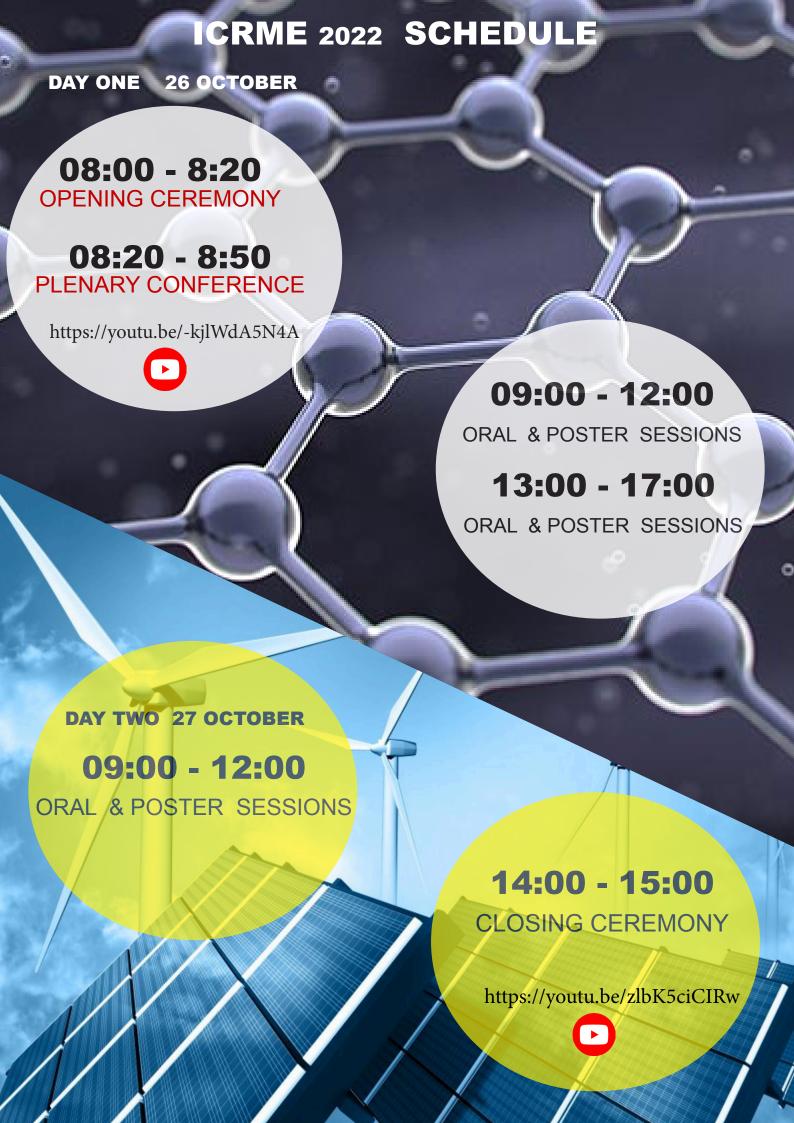


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1st International Conference on Renewable Materials and Energies ICRME2022

October 26-27, 2022, OUARGLA-ALGERIA

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Numerical study of heat transfer by mixed convection in a ventilated cavity filled with hybrid nano-fluid

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Abstract: In this work, we carried out a numerical study of the stationary laminar flow by mixed convection in a ventilated two-dimensional cavity containing a cold cylinder in the center of the latter. The cavity is filled with different hybrid nano-fluids, (Water/Ag-TiO2) and (Water/Al2O3-TiO2)). The cavity containing two gates (Orifices) of entry and exit of the flow, for a Reynolds number (Re) fixed so that the Richardson number takes the values: Ri = 0.1, 1, 10 and 100, and a volume fraction of the nanoparticles comprised between (0% and 8%). The square cavity is heated isothermally by the surface of the lower wall by a heat source (The source is to maintain the lower wall at constant temperature), the other walls are maintained adiabatic. The equations, which govern the flow, have been solved numerically using the finite volume method. The results obtained show that the heat transfer increases with the increase in the volume fraction and the Richardson number. Thus the heat transfer rate (Nu) increases with the increase in Ri.

Computational Materials Science In Catalysts And Applications

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Abstract: This work focuses on a computational study on the mechanisms of oxidation of alcohols by hydrogen peroxide with the use of Fe-ZSM-5 as a catalyst. These molecular modeling methods allow us to visualize physics at work. The phenomenon of oxidation of the substrate by the MFI type zeolites (M-ZSM-5) takes place at the nanoscale, it is impossible for the chemists to observe the steps of the phenomenon. Numerical Simulations thus offers a better understanding of the catalytic phenomenon (adsorption, oxidation, desorption ...). In addition. DFT methods prove their effectiveness in the determination of molecular istructures de Ouargi (intermediates and transitions), the frequencies of the modes of vibration and the variation of energy. They offer a very effective theoretical tool for practical applications to compare and Renewable supplement experimental studies. The studies that we conducted by the Gaussian 09 logistic on Energies clusters of Fe-ZSM-5-substrates showed this well.