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Authors: **Krishnadasan V. B, N. K. Mohammed Sajid, K. A. Shafi**

Paper Title: **Performance Analysis of a Triple Fluid Vapor Absorption System using Engine Exhaust Gas**

Abstract: The air conditioning units currently used in road transport vehicles are predominantly of the vapour compression refrigeration (VCR) type. In such a unit, the compressor requires an input of energy in the form of work. In order to obtain refrigeration, possibility of triple fluid vapour absorption refrigeration (VAR) systems utilizing waste heat from the engine exhaust gas has been investigated. This work presents an experimental study of a triple fluid vapour absorption refrigeration system using the exhaust of an internal combustion engine as energy source. From the study, it has been concluded that engine exhaust gas can be used as a power source for a vapour absorption system. When load on the engine increases, power availability in the generator increases and cooling capacity of the system increases but COP of the system reduces.

Keywords: Absorption refrigeration system, triple fluid system, engine exhaust.

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2.

Authors: **Kavitha Jaba Malar R, Joseph Raj V**

Paper Title: **Ear Recognition using Feature Fuzzy Matching**

Abstract: This paper proposes a novel method, a Fuzzy Feature Match (FFM) based on a triangle feature set to match the ear. The ear is represented by the fuzzy feature set. The fuzzy features set similarity is used to analyze the similarity among ears. Accordingly, a similarity vector pair is defined to illustrate the similarities between two ears. The FFM method shows the similarity vector pair to a normalized value which quantifies the overall image to image similarity. The algorithm has been evaluated with Computer Education and Training Society (CETS) students and staff members' ear database. Experimental results confirm that the proposed FFM based on the triangle feature set is a reliable and effective algorithm for ear matching.

Keywords: Extraction, Ear recognition, Fuzzy features, Matching, Similarities, Triangularization.

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Authors: **Ijemaru Gerald Kelechi, Oleka Emmanuel Uchendu, Ngharamike Ericmoore Tochukwu, Njokuocha Kenneth Ikechukwu, Udunwa Augustine Ikenna**

3.

Paper Title: **Inter-Cell Interference Mitigation Techniques in a Heterogeneous LTE-Advanced Access Network**

Abstract: As LTE (Long Term Evolution) networks proliferate and network traffic increases, LTE operators face the problem of interference. Because LTE spectrum is limited, most operators deploy single frequency networks to maximize capacity. However, while single frequency networks increase spectral efficiency, they also increase the potential for interference. Interference is highly unpredictable and depends on various factors such as channel conditions, traffic from other terminal and noise. Interference occurs between various equipment in a heterogeneous LTE-A access network and is a threat to the technology of wireless network. Hence, this research work seeks to analyze the various techniques for combating interference in LTE–Advanced access network per unit area using different combination of methods. Network-based interference mitigation solutions are not yet available to address the interference problems of today's LTE networks. However, Terminal-based interference solutions are available today as they offer operators a powerful weapon to combat interference. The introduction of Femtocell to users has also made interference mitigation scheme achievable. The Femtocell interference mitigation technique mitigates the interference between network components such as Macro-cell and Femtocell in a heterogeneous LTE-A access network. The work also emphasizes the importance of heterogeneous network in a wireless communication and the basic sources of interference and their mitigation techniques in this kind of network. The implementation of all the suggested mitigation techniques and power control formula as explained in this work has been proposed to target the performance of heterogeneous LTE-Advanced access network. This, as a result, will improve the signal quality of the received signal, and end users will experience higher throughput and better service continuity, and LTE operators will improve coverage and increase the capacity of their networks.

Keywords: Interference Mitigation, Heterogeneous Network, LTE, Femtocell, Picocell, Simulation.

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4.

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Paper Title: **Experimental Evaluation on the Effect of Nan fluid Concentration on the Performance of Direct Absorption Solar Collector**

Abstract: In this study, a direct absorption solar collector (DASC) working on volumetric absorption principle is developed to perform experimental study for evaluating the effects of different Al2O3-H2O nanofluid concentration. Experimentation was carried using four different concentrations of 20 nm size Al2O3 nanoparticles, 10 ppm, 50 ppm and 100 ppm. ASHRAE standard 93-86 was followed for calculation of instantaneous efficiency of solar collector. Use of nanofluid as working fluid improves the optical and thermo physical properties that result into an increase in the performance of the collector. Improvement in efficiency of solar collector has been recorded in all three cases of using nanofluids in place of water. Optical efficiency enhancement of 22.1%, 39.6% and 24.6% has been observed for 10 ppm, 50 ppm and 100 ppm concentration respectively.

Keywords: Direct absorption solar collector; Al2O3-water nanofluid; Concentration, Collector testing; Performance enhancement.

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