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Management & Information Technology

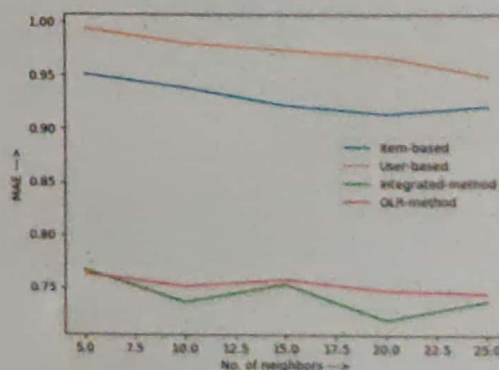
- 403 **The Internationalisation of the Spanish Technological Sector Comparison with Other Sectors** One of the strategies to be followed by companies in the global market is internationalisation, especially if they want to expand and become more competitive. For this, they must concentrate on products and services with higher added value. The incorporation of technological content is critical in this process. Therefore, the technology sector is one of those that have actively opted for internationalisation. The case of Spain is analysed in this paper, a country in which 55% of its exports are of technological content.

N Araujo Vila, L Cardoso & V Pal Carril

- 408 **Technology Function Analysis of Patent and Development Strategy for Robot Visual Servo** The industrial robot applications range from vehicle, machinery, semiconductor, etc. The robot visual servo technology and its patents is one of the important areas. Also, the patent analysis is not only a prerequisite for enterprises in technology battle, but also the foundation to develop competitive strategy. This study aims to explore the function requirements, association between requirements and technology of robot visual servo to validate technology development strategy using patent effectiveness approach.

Z Y Lee, S J Lee & Grace T R Lin

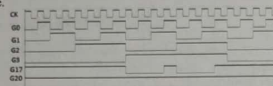
- 411 **Hybrid Cohort Rating Prediction Technique to leverage Recommender System** The long tail of diverse consumption of resources online by the customers raises a challenge for the e-commerce websites and service providers. Recommender system offers a vigorous way to cope up with the aforementioned challenge. In this paper, we have proposed a hybrid cohort rating prediction technique which relies on high cohort users and high cohort items to make predictions. Our model significantly improves the retention of recommender system showing encouraging results when compared with existing traditional recommender systems.



R Dhanalakshmi & B B Sinha

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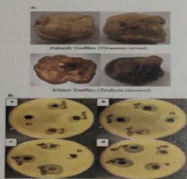
- 415 **Proposing a Novel Method for Hardware Trojan Detection**
- Hardware Trojan refers to an unintended or undesirable alteration in many circuits which turned out to be a major challenge for the design and fabrication of integrated circuits for the semiconductor industries. Such a challenge has been addressed in numerous critical applications. Due to their diversity and process variation, Trojans vary in terms of detection and prevention methods. This paper proposes a novel technique for the Trojan detection involving the application of self-examining circuits. This method adequately resists against the PV and scalability and do not need to any golden ICs. Segmenting the circuit enables the technique to both detect and locate the Trojans with a quick possible time. The implementation of this method indicates a significant improvement in the detection rate.



A Bazzazi & M T Manzuri

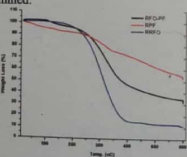
S & T and Industrial Research

- 419 **Assessment of *In Vitro* Antimicrobial and Anti-breast Cancer Activities of Extracts Isolated from Desert Truffles in Saudi Arabia**
- Truffles are consumed worldwide as a type of precious food. Desert truffles are characterized by their growth under extreme soil and climate conditions. They have numerous nutritional and medicinal applications. Desert truffles have been shown to exhibit various biological activities. During the present work, we identified two truffle types collected from Riyadh Province, Kingdom of Saudi Arabia, as *Tirmania nivea* and *Terfezia clavayri*. Their extracts showed significant antimicrobial activity against *Bacillus subtilis*.



E A Elsayed, F D Alsahli, I A Barakat, H A El Enshasy & M A Wadaan

- 426 **Studies on catalytic co-pyrolysis of bakelite and refineries residual fuel oil using ZSM-5 catalyst to produce lighter fuel oil**
- Refineries Residual Fuel Oil (RFO) and Bakelite (BL) and were co-pyrolyzed together using catalyst ZSM-5 under the atmospheric pressure with different mixing ratios of the feedstocks. The TGA analysis shows that most of the degradation take place between the temperature range of 250–400°C. The studies were carried out at two different temperatures of 500°C and 600°C using a batch reactor with different blended ratios, with blended feedstocks to catalyst ratio of 4:1. The effects of the two variables i.e. temperature and blending ratios among the two feedstocks, in terms of the products yield of liquid fuel, gas, coke and conversion were determined.

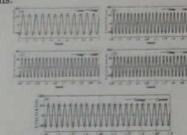


P Kasar & M Ahmaruzzaman

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- 431 **Improved Robust Controller Design for Stabilization of Grid-Tied Photovoltaic System**

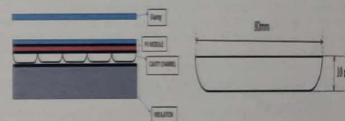
It is necessary to control the aspects such as injected current to the three-phase grid, power factor and dc-link voltage to extract maximum power from the photovoltaic (PV) system so as to improve the results of a three-phase-grid-tied PV system. A Robust Input Output Partial Feedback Linearization Control (RIOFFLC) approach is proposed to control these factors to stabilize the three-phase-grid-tied system. This paper proposes an approach that robust in control and ensures the occurrences of uncertainties will not affect the PV system model. These uncertainties are examined based on the provided matching conditions using MATLAB/SIMULINK at different contingency and changes in atmospheric conditions.



K R Reddy, V N Reddy & M V Kumar

- 437 **Experimental Analysis of the Performance of a Solar Photovoltaic-thermal (PV/T) Water Collector with a Modified Absorber Design for the Climatic Condition of Assam, India**

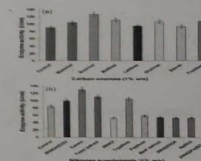
A hybrid Photovoltaic Thermal (PV/T) collector is an integration of a PV module with a thermal collector for simultaneous generation of electricity and thermal energy. The major challenge facing PV/T collector is its low efficiency, which can be improved by design modification of the absorber plate. In the present work, a novel design of a hybrid PV/T water collector has been proposed by incorporating a modified channel type absorber, which is experimentally investigated under the climatic condition of the North eastern region of India.



Bishal Podder & Agnimitra Biswas

- 442 **Regulation of Process Parameters for Improved Synthesis of Thrombolytic Enzyme from *Bacillus cereus* S46**

The study aimed to isolate soil bacteria and screen them for thrombolytic activity. Effect of process parameters on enzyme production were analyzed using one factor at a time approach. Isolate S46 demonstrated highest blood clot dissolution (15.64%) and was chosen for further study. Based on the partial 16S rDNA sequence, isolate S46 was identified as *Bacillus cereus*. Addition of sucrose and casein (1% w/v) to the broth resulted in highest enzyme yield (130 U/ml). Enzyme production improved in presence of $MgSO_4$ (0.08% w/v), $FeSO_4$ (0.004% w/v), respectively. Enzyme production was best (186.66 and 210.86 U/ml) at pH 8.0 and 30 °C. Maximum enzyme production (220.86 U/ml) was reported at 72 h with inoculum size of 1.5% v/v.



D H D'Souza & S Bhattacharya

