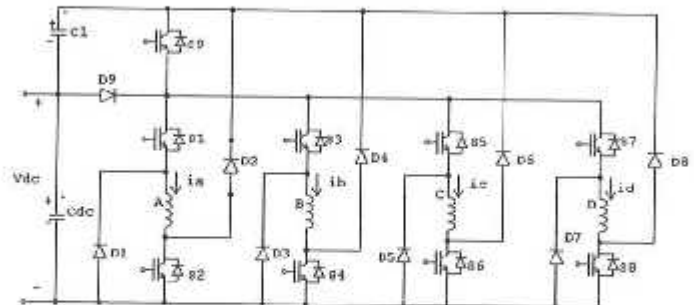


CONTENTS

Management & Information Technology

- 285 **Speed Control of Switched Reluctance Motor Using Soft Computing Technique for Industrial Applications**

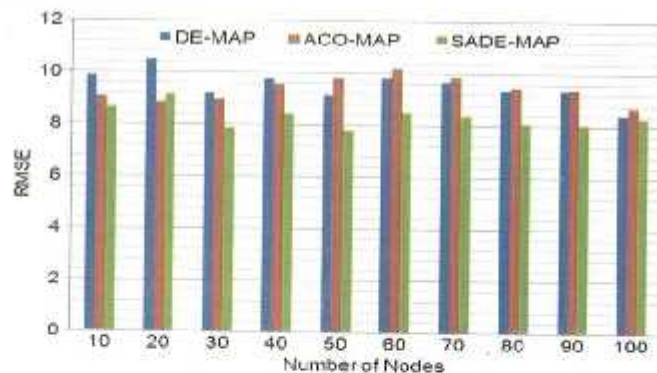
This paper presents a new converter for switched reluctance motor for controlling the speed using soft computing technique like Fuzzy Logic Controller (FLC). The operating modes of proposed converter circuit are discussed. The proposed converter is capable of minimizing the torque ripple because of its faster excitation and demagnetization nature and also improving the average torque when compared to the conventional converter circuit. Fuzzy Logic Controller has becoming an important methodology in control engineering.



S Muthulakshmi & R Dhanasekaran

- 289 **Performance Evaluation of Hybrid Evolutionary Algorithms in Minimizing Localization Error for Wireless Sensor Networks**

Localization is considered as one of the most significant research issues in Wireless Sensor Network (WSN). The objective of localization is to determine the physical co-ordinates of sensor nodes distributed over the sensing field. Location information plays a vital role for coverage, deployment of sensor nodes, routing and target tracking applications. Initially, the localization of sensor nodes can be performed by Mobile Anchor Positioning (MAP), a range-free localization method.

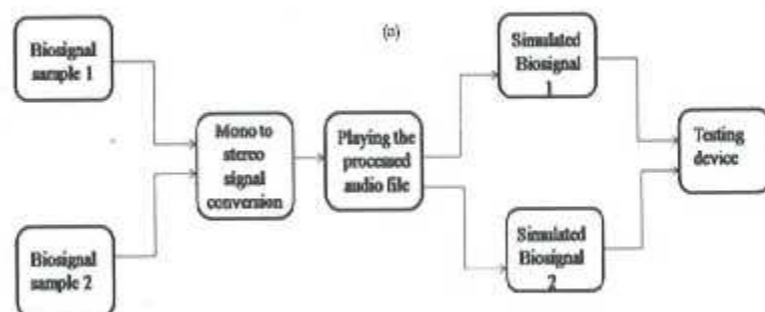


S Sivakumar & R Venkatesan

S & T and Industrial Research

296 Development of Sound Card Based Dual Channel Novel Bio-signal Simulator

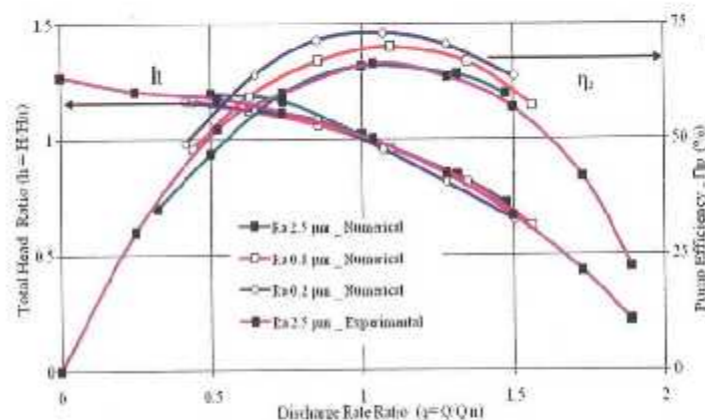
To subside the risk factors as well as the requirements for various age groups of human beings, bio-signal simulators are developed since they exactly mimic the real biological signals. While existing simulators are generating only one bio-signal, this work demonstrates the dual channel simulator capable of producing two bio-signals simultaneously. This task specializes with the simulation of Electrocardiogram (ECG) and Arterial Blood Pressure (ABP) signals from Physionet, the standard database used to generate signals. The sampling frequency for the ECG and ABP signals are 100Hz and 125Hz respectively. These signals are processed and transmitted through the sound card audio output port of the personal computer and can be used for testing and calibrating the medical instruments, research and development and experimental activities in educational institutions.



M Alagappan, G G Prasad & A Kandaswamy

300 Experimental and Numerical Study of Efficiency Improvement by Surface Coating on the Impellers and Diffusers of Mixed Flow Submersible Borewell Pumps

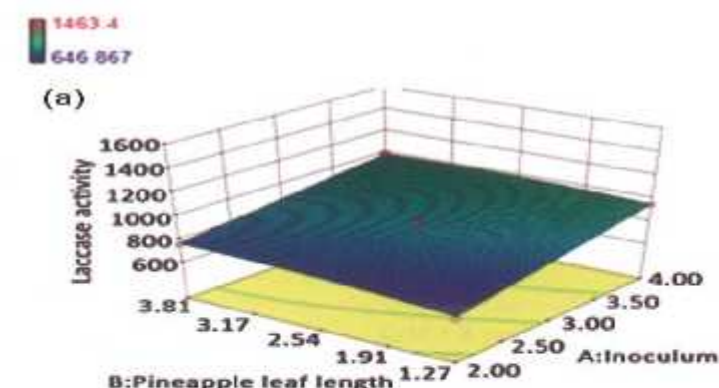
This study focuses on the effect of surface coating on the impellers and diffusers in improving the efficiency of mixed flow submersible borewell pumps. It consists of two parts. In the first part, a 3 stage pump was constructed with uncoated bronze impellers and cast iron diffusers having a surface roughness value of $2.5\mu\text{m Ra}$ and tested for pump performance. Then the same 3 stage pump was tested with impellers, diffusers coated with a polymeric coating having a surface roughness of $0.2\mu\text{m Ra}$ and ceramic enamel having a surface roughness of $0.8\mu\text{m Ra}$. Experimental results showed considerable improvement, upto 4.5% in pump efficiency.



C Murugesan & R Rudramoorthy

306 Application of response surface methodology for the optimization of laccase production from *Pleurotus ostreatus* by solid state fermentation on pineapple leaf substrate

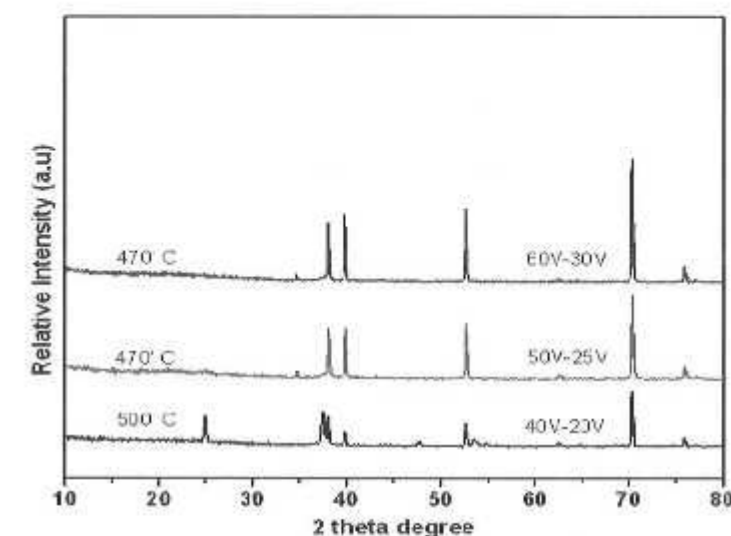
Laccases are glycosylated polyphenol oxidases belonging to a group of enzymes called blue copper oxidases. In the present study laccase was produced by solid state fermentation of pineapple leaves by *Pleurotus ostreatus* NCM1200. For optimization of laccase production the effect of various nutritional and physical parameters on production was initially examined using 'one-factor-at-a-time' method. Variables with statistically significant effects on enzyme production were identified by the Plackett-Burman experimental design.



P S Soumya, M S K Lakshmi & P Nambisan

315 Development and Morphology of Titanium Nanotubes Anode for New Generation Solar Cell by Electrochemical Anodizing Method

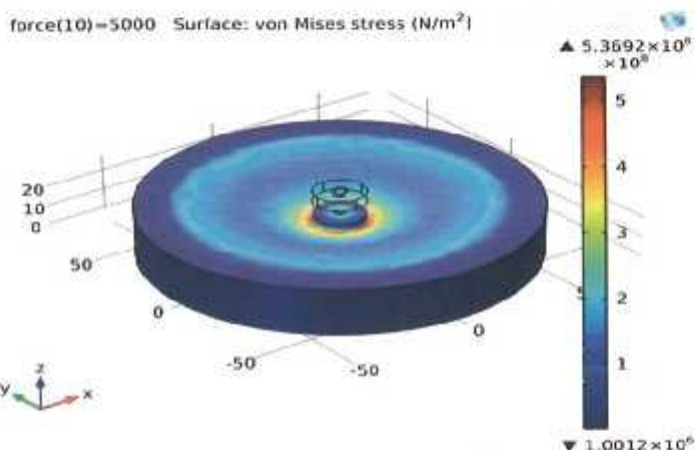
This work investigated the effects of parameters of the anodization process on the geometrical features of the Titanium nanotubes anode. The topography of Titanium nanotube diameter and length had been affected without usage of magnetic stirrer by applying at three different DC voltage. In this study, we had synthesized Titanium nanotube arrays by electrochemical anodization of Ti foil by direct current (D.C.). Ethylene glycol and ammonium fluoride electrolyte was used to study the development of nanotubes above atmospheric temperature with varying D.C voltages.



T Balasundaram & K Raja

320 Design, Development and Metrological Characterization of a Force Transducer

The present paper discusses the design and development of a force transducer. The force transducer has been developed for a nominal capacity of 5 kN and strain gauges have been applied at suitable locations over it to form a Wheatstone bridge. The force transducer has been metrologically investigated according to the standard calibration procedures based on standards ISO 376-2011.

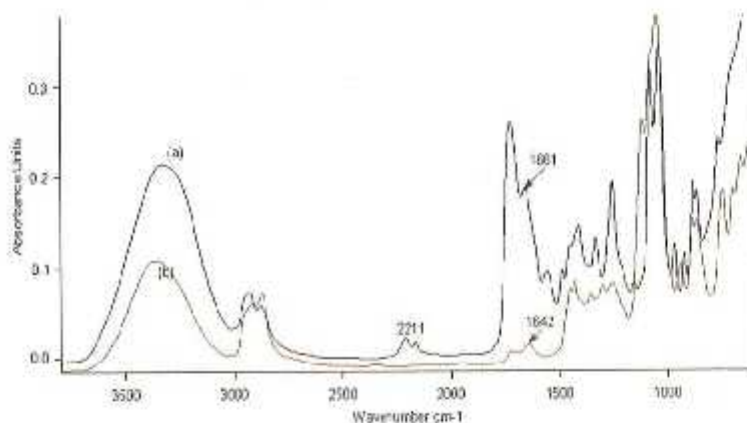


R Kumar, B D Pant & S Maji

Energy and Environment

322 Green Recycling of waste Optical Disc to Urethane Products

A new green recycling method of Polycarbonate (PC) plastic, from waste optical disks (ODs), to urethane products is proposed. Recycling involves the reaction of PC with glycol and urea at 180°C under ammonia saturated condition. Optimum weight ratio (ethylene glycol to urea and PC) and time for recycling was decided with the help of sequential UV spectroscopic analysis at different weight ratios and time. IR spectroscopy evidences the presence of ethylene glycol carbamate (EGC) as active reaction intermediate.



D Pant

Author-Reader Platform

328 Instructions to contributors