

## **A cross-cultural study on women in undergraduate engineering programs in malaysia and united states: perceptions of parental influence on academic choice**

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**Abstract:** This paper discusses the findings of a cross-cultural qualitative study in which women in undergraduate engineering programs were asked to describe their parents' influence on their decision to pursue engineering. First conducted with 16 women undergraduate engineering students in Northeastern United States, the study was replicated with 15 women in Malaysia, where the underrepresentation of women in STEM fields is not as great as in the U.S. While there was a high level of consistency found in the themes that emerged from the studies, there were several marked differences that are examined in the paper, particularly the cultural differences in expression of themes. Recommendations are offered for initiatives to promote inclusive engineering educational programs and actualization of women in a diverse and global learning environment.

**Keywords:** Academic socialization, women engineers, qualitative research methods, engineering education, Malaysian-American cross-cultural research

## **Prediction of Engineering Properties of Glass Epoxy Filament Winded tube using Artificial Neural Network**

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**Abstract:** The present paper deals with the effect of changing fiber orientation. Specific Gravity and glass content of a FRP composite tube fabricated by filament winding method on its various properties like Tensile Strength, Compressive Strength, Flexural Strength, Arc Resistance(AR), Comparative Tracking Index (CTI), Electrical strength and Water absorption. In this paper experimental data has been taken to predict the engineering properties of Glass Epoxy Filament wound tube by changing the filament winding angle through Artificial Neural Network using MATLAB software. It was observed that the tensile and the flexural properties of composite tube increases significantly with decrease of filament winding angle. In this work the various Artificial Neural Network (ANN) and activation functions were studied, and out of that Back propagation Network and sigmoidal function were selected respectively. The ANN is trained and initially tested using patterns generated through the data base of actual testing result of filament winded tubes on machine through various destructive and non destructive testing. Once the ANN is trained it gives instantaneous and accurate estimation of desired parameters for unseen patterns within the domain. The ANN is further tested and cross verified with the experimental results evaluated by actually performing the experiments required for evaluating the properties considered in this work. The comparison between the ANN estimated value and experimental result show that a good agreement exists between the estimated and experimental value. Hence developed ANN is found to be instantaneous and accurate in estimating the desired parameters for unseen patterns within the domain

The objective and contribution in the field of proposed work is to optimize the filament winding angle by developing the ANN to predict the engineering properties of Glass Epoxy Filament winding tubes this will reduce the wastage of material during destructive testing, testing cost, testing time etc. to a great extent.

**Keywords:** Artificial Neural Network, Back propagation Network (BPN), MATLAB, FRP Composite Tube, Filament winding

## **Impact Velocity Dependence of Mechanoluminescence Produced During Impulsive Deformation Of Coloured Alkali Halide Crystals**

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**Abstract:** When the ML is excited impulsively by dropping a load of fixed mass the  $\gamma$ -irradiated crystals, then two peaks are observed in the ML intensity versus time curve of the crystals. The ML intensity corresponding to the first peak is always greater than that of the second peak. The ML intensity after first peak and second peak

decays exponentially with time. ML is a volumetric phenomenon, and its intensity increases with increasing size of the crystals. Peak ML intensity  $I_{m1}$  of the first ML peak increases linearly with the area of cross-section of the crystals while peak ML intensity  $I_{m2}$  and the total ML intensity  $I_T$  increase linearly with volume of the crystals. The time  $t_{m1}$  corresponding to the first peak and the time  $t_{m2}$  corresponding to the second peak in the ML intensity versus time curve, shift towards shorter time values with increasing impact velocity of the piston  $I_{m1}$ ,  $I_{m2}$  and  $I_T$  increasing impact velocity  $v_o$  and  $I_{m2}$  and  $I_T$  attain saturation for higher values of impact velocity  $v_o$ .  
Keywords: Mechanoluminescence, dislocations, deformation, alkali halides.

### **Convenient one pot synthesis and antimicrobial evaluation of some new Mannich bases carrying Pentamethylene glutarimide moiety**

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Abstract : Mannich bases of Pentamethylene glutarimides has been synthesized by aminomethylation reaction. The newly formed Mannich bases have been characterized by elemental and spectral (UV,IR and <sup>1</sup>H NMR) methods and introduced to antimicrobial study against some pathogenic Gram - positive and Gram - negative bacteria. The newly synthesized Mannich bases possess a very noticeable and prolonged antibacterial activity  
Keywords: Pentamethylene glutarimide/ Mannich bases/ Antimicrobial activity/ sulphonamide.

### **Biogas Energy in Sweden – A Case Study**

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Abstract: Sweden uses the highest proportion of renewable energy in relation to final energy use of any country in the entire EU. Furthermore, Sweden has come a long way in production and use of biogas and is a leading country for upgrading biogas to motor fuel gas. Investments in biogas plants have been made over several years, but still the demand for biogas exceeds supply in many regions in Sweden. This paper discusses the biogas energy for motor fuels in Sweden.

Keywords: biogas, energy, biogas plant, anaerobic.

### **Information technology applications improving personality development: a critical analysis**

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Abstract: The phenomena of liberalization and globalization of the Indian economy coupled with Information Technology revolution have brought new challenges to higher education. The responsibility of institutions of higher education in the above changing scenario is not only confined to imparting education, but also to forecast the future needs of the economy. It is really a positive signal in Indian education systems wherein the schools are awarded for encouraging computer literacy among the students. The need of the time is to encourage and utilize the government schemes and facilities towards providing quality education to rural and semi-urban students. This paper discusses impact of implementation of information technology tools in education on quality of students and personality development of students. .

Keywords: Information technology tools, personality traits, electronic collaborative projects, learning styles, infra structure, resources utilization.

### Seismic response of RCC framed buildings with reduced braces

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**Abstract :** Framed structures combined with Braces have been widely used for lateral load resistance in tall buildings. Braces are generally provided for full height of the frames, but reduction of braces may not necessarily be detrimental to the performance of structures. This concept has been extended to symmetrical reinforced cement concrete special moment resisting frames (SMRF) with reduction of braces from the top at various heights. Efforts have been made to find out the effects of this reduction of braces on lateral load resistance of the structure under dynamic earth-quake shaking. 3-D models of frames have been dynamically analyzed using STAAD-Pro software. The comparative study of results has revealed that braces can safely be provided to a lower height from base than 100%, without sacrificing much of the lateral strength of SMRF. Reduction of braces reduces the shear force responses of the frame but inter-storey drift is increased.

**Keywords :** Braces , SMRF, Lateral displacement, Storey shear, Dynamic analysis.

### Self-Focusing of two co-propagating Gaussian Laser Beams in an Optical Fiber

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**Abstract:** Self-focusing of two co-propagating Gaussian laser beams in an optical fiber with Kerr nonlinearity is studied using paraxial ray theory. A weaker laser beam can be successfully focused into the fiber in the presence of a stronger laser. The process is sensitive to the spot sizes of the two laser beams.

**Key words:** Laser beams, Self focusing, Kerr nonlinearity, Optical Fibres

### Fixed point theorems for a self maps on a complete MENGER spaces

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**Abstract:** In this paper, we prove a fixed point theorem for a self map on a Menger space and we generalize the theorem of Sastry and Rao [11] for a sequence of self maps on a complete probabilistic metric space.

**Keywords:** Probabilistic metric space, fixed point theorem. 2000 AMS Subject Classification No. : Primary 47H10, Secondary 54H25.

### Strategic topology for ad hoc network routing protocol design

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**Abstract:** The Ad hoc networks are the wireless networks where the communication takes place through the different nodes. In general, these nodes are randomly deployed. This paper presents the geometry shape based strategy for network deployment evaluation. The basic geometry shapes: triangle, circle and square are used for the evaluation of randomly deployed nodes. Presented strategic topology takes the care of the mobility of the nodes. Once the shape is recorded, the same shape can be used for the disturbed node deployment after the mobility of the nodes. This strategic deployment can be used for the designing of any routing protocol for ad hoc network.

**Keywords:** Ad hoc Network, Network topology, Node deployment and Routing protocol

## **Synthesis and characterization of Cellulose Phenol-2, 4-disulphonic acid [CPDSA] resin and its application for removal and recovery of metal ions from aqueous solution**

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**Abstract:** A new cellulose based resin containing phenol-2, 4-disulphonic acid group has been synthesized by modified porath's method of functionalisation of polysaccharides. The adsorption behavior of CPDSA resin for toxic metal ions has been investigated by batch and column experiments. The prepared resin was characterized on the basis of ion exchange capacity, elemental analysis, pH titration and FT-IR spectra. Owing to the large differences in  $K_d$  values of heavy metal ions at different pH, the removal and recovery of metal ions from their aqueous solutions and effluent of Apex Steel Industry, Jodhpur has been studied systematically. The adsorption capacity of different metal ions on CPDSA resin follows the order; Zn (II) > Fe (II) > Cd (II) > Cu (II) > Pb (II).

**Keywords –** Distribution coefficients; Ion exchange capacity; Ion exchanger; Heavy metal ions; CPDSA resin.

## **Estimation of chemical shift in nmr and their use in modeling carbonic Anhydrase inhibition**

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**Abstract:** The paper describes the estimation of chemical shifts in NMR using Balaban and Balaban type indices. Further attempt is made of using NMR chemical shift along with topological indices for modeling carbonic anhydrase inhibition. The statistically significant models are governed by a variety of statistical parameter.

**Keywords:** NMR, regression, QSAR, CA inhibitor.

## **National Skills Development Initiative: A Lifecycle Approach**

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**Abstract:** The Government of India has launched a National Skills Development Initiative in recent past. Given the federal structure of the country and education being on concurrent list each state has autonomy to plan independently and have own policies for its implementation. This poses a challenge to design a system of skills development that encourages autonomy of state, caters to its specific needs yet integrates it with national design, while eliminating duplication of efforts and maximizing resource utilization. In this paper an attempt has been made to emphasize that such a design has to be demand based, and a lifecycle model of development having six phases viz. conceptualizing demand, system development & best practices, capacity development & quality assurance, roll out plan & implementation, integration & sustenance, and research & feedback has been suggested. It is further discussed that such a development should also be accompanied by an integrated development of National Qualifications Framework, that helps in accumulation of skill credits, in earning a qualification, and enables one to move up the qualification verticals in vocational and academic streams. Current progress in this direction has been briefly stated and a lead to further progress in this direction is given.

**Key Words:** Skills, competency, qualification framework, NVEQF, Spoke-Hub strategy, Skill Footprint, skills for holistic & sustainable development, National Skills Grid.