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### Volume-2 Issue-6, May 2015, ISSN: 2347-6389 (Online)

**Authors:** Mostafa Mohammadi, Alireza Kashani Nia

**Paper Title:** Simulation of Voltage Change Effects in Ion Channels in order to Reproduction of Action Potential by MATLAB Software

**Abstract:** In this study, the effects of voltage change in ion channels in order to reproduction of action potential and its simulation by Hodgkin Huxley model have been explored. The simulation has been performed by using the Matlab software. By writing Hodgkin Huxley equations codes and applying the parameters values of it, action potential waveform to obtain. Then by reducing the amount of excitation current, the lowest value that the action potential is placed on the eve of the production will be obtain. The next step is to stabilize the input excitation current to the value obtained and then change the sodium, potassium and leakage channels voltage. According to the characteristics of each ion channels and voltage variations on them, action potential will start to reproduce. Thus we have shown, with the decline of the excitation current for reasons such as some illness, we can reproduce the action potential and propagate it inside of axon by changing the ion channels voltage.

**Keywords:** Action potential, Axon, Hodgkin Huxley model, Excitation current, Matlab simulation.

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**Authors:** Suha I. Al-Nassar

**Paper Title:** Study the Effect of Molarity on the Synthesis Nanoparticles by Liquid-Phase Laser Ablation Technique

**Abstract:** This work was focused on the studying the effect of molarity on the producing ZnO nanoparticles by Liquid –Phase Pulsed Laser Ablation (LP-PLA) of Zn metal plate in the aqueous environment of cetyl trimethyl ammonium bromide (CTAB) using femtosecond laser (Ti-Sapharlie) has wavelength= 800 nm, rep. rate= 1K Hz, Pulse duration =130 fs and laser energy pulse 0.5 mJ. The effect of molarity on the optical and structure of ZnO was studied is characterized by UV-visible absorption. UV-visible absorption spectrum has three peaks at 220, 210,204 nm for different values of molarity (10-2, 10-3 and 10-4) respectively, our results show that UV-visible spectra show a blue shift with decrease the molarity of CTAB solution because this leads to decrease the concentration of ZnO NPs and decreases the the aggregate of surfactant molecules dispersed in liquid collide ,and blue shift indicated to get smaller size of nanoparticles. The blue shift in the absorption edge indicates the quantum confinement property of nanoparticles. Also FTIR transmittance spectra of ZnO2 nanoparticles prepared in these states show a characteristic ZnO absorption at 435–455 cm−1.

**Keywords:** Ablation time, CTAB solution, pulsed laser ablation technique, Zinc oxide nanoparticles.

### References:


### Comparative Study on Low Power Barrel Shifter/Rotator at 45nm Technology

**Authors:** Jyoti Sankar Sahoo, Nirmal Kumar Rout

**Paper Title:** Comparative Study on Low Power Barrel Shifter/Rotator at 45nm Technology

**Abstract:** As technology advances in the field of VLSI, the circuits are upgraded to lower power consuming and of high speed. In modern digital signal processing (DSP) and graphics application the shifter is an important module. A Barrel shifter/rotator can be implemented exclusively for shifting and rotating operations individually or both at the same time and can be implemented by 2:1, 4:1, 8:1 etc. multiplexers units. Barrel shifter/rotator implemented using multiplexer unit can use it repeatedly thus reduce the amount of power consumption. In this paper initially the Barrel shifter/rotator circuit using multiplexer is implemented using Complementary Metal Oxide Semiconductor (CMOS) logic then the circuit is implemented by different low power techniques. Finally various designs are compared in terms of power and delay. All the designs are implemented in Cadence Virtuoso Tool at 45nm technology for its validation.

**Keywords:** Barrel shifter, Pass transistor logic, LECTOR technique, Double gate MOSFET, Diode Free Adiabatic Logic, Low power.

**References:**


### Dispersion Analysis of Optical Fiber Using MATLAB

**Authors:** Raviraj Prakash Nagarkan

**Paper Title:** Dispersion Analysis of Optical Fiber Using MATLAB

**Abstract:** Optical fiber is a dielectric waveguide, cylindrical in shape. It confines electromagnetic energy in the form of light within its surface and guides light by multiple internal reflections, provided the angle of incidence onto the core cladding interface is greater than the critical angle \( \theta_c \). Dispersion of the transmitted optical signal causes distortion for both digital and analog transmission along optical fibers. When considering the major implementation of optical fiber transmission which involves some form of digital modulation, then dispersion mechanisms within the fiber cause broadening of the transmitted light pulses as they travel along the channel.

**Keywords:** Dispersion, single mode fiber, multimode fiber.

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Authors: Shashank Shastri

Paper Title: Study of Geosynthetic Clay Liner Reinforced Mud Blocks

Abstract: In the present investigation attempt has been made to improve the strength of the black cotton soil mud bricks mixed with different content of lime by reinforcing the geogrid. The soil is collected from Naragund area of Bagalkot District. The circular (100mm diameter and 200mm depth; 150mm and 100mm depth) and rectangular (200mm x 100mm x 100mm) mud bricks are prepared with soil treated with 10, 12, 14 and 16 percent lime with the geogrid reinforcement at the middle depth of the brick. The compressive strength of the mud bricks is obtained by laboratory compression test apparatus. Considerable improvement in the compressive strength is observed in rectangular mud bricks with14% and 16% of lime content reinforced with geogrid and for circular mud bricks, the maximum compressive strength is observed at 12% lime content with geogrid reinforcement.

Keywords: Black Cotton Soil, Lime, Geo-grid, Compressive strength, Rectangular blocks.

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Authors: Kosigker G. M, Guddad S. G, Koli R. R

Paper Title: Automation in Tissue Culture Industry

Abstract: The project is to do automation in tissue culture industries. The main purpose of this project is doing work on polyhouse automation, autoclave automation and making two AC’S ON-OFF each after 12hours delay. All automation work is mainly based on 89C51 microcontroller. The requirement is that to maintain the 70% humidity with outsource exhaust fan and water sprinkler. Autoclave machine is used for empty bottle sterilization and also for chemical filled bottle sterilization with 15lbs and 10lbs pressure for time 10 minutes and 20 minutes respectively. Making autoclave automatic with respect to time and pressure on the basis of weight of respective empty and chemically filled bottles.

Keywords: Auto clave machine, Microcontroller, humidity, pressure and polyhouse automation.

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Authors: Priya V, Biju V. G.

Paper Title: SVM Based Liver Tumor Classification from Computerized Tomography Images

Abstract: Accurate liver segmentation and tumor detection on computerized tomography (CT) images is a crucial task in the cases where surrounding tissues have intensities similar to that of the liver and lesions reside at the liver edges. In this paper, an automated method to segment liver portion, followed by tumor area from abdominal CT image is proposed. For this, the CT images are pre-processed by median filter to remove noise from the image and liver is segmented using localized region based active contouring algorithm. Tumor is detected from segmented liver using seed region growing algorithm. Using Grey Level Co-occurrence Matrix (GLCM), the texture features of the tumor are extracted. Support Vector machine (SVM) is used to classify the tumor as either benign or malignant based on these texture features. The performances of liver segmentation and tumor detection are evaluated by using Segmentation Matching Factor (SMF), Dice coefficient (DICE COEFF), Root Mean Square Error (RMSE) and Peak Signal to Noise Ratio (PSNR). Experimental results show that the proposed method has a lower error in segmenting the liver and is able to detect and classify all tumors from the liver accurately.

Keywords: CT image, Localized region based active contours, Region Growing Algorithm, GLCM, SVM.

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<tr>
<td>Paper Title:</td>
<td>A Comparative Study of Back Gate Misalignment Effects for Nano Scale Symmetric and Asymmetric Double Gate Mosfets</td>
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<td>Abstract:</td>
<td>The technical advancement in the field of device scaling leads to a major concern i.e. short channel effects in conventional single gate (SG) Metal-Oxide-Semiconductor Field-Effect-Transistor (MOSFET). Hence the double gate (DG) MOSFETs become a best option due to its better controllability of gate over the both the front and back channel. Primarily there are two types of DG-MOSFETs, known as Symmetric DG-MOSFET and Asymmetric DG-MOSFET. But the misalignment of top gate and bottom gate is a matter of concern in the fabrication process of the device. This misalignment of both the gates can cause damage to the device characteristics and affects the parameters like threshold voltage, drain current and surface potential. In this paper the back gate misalignment effects are investigated for both symmetric and asymmetric DG-MOSFETs and a comparative study has been made. The misalignment is considered towards both source side and drain side. Quantum mechanical effect and mobility degradation are not incorporated in our work for simplicity purpose.</td>
</tr>
<tr>
<td>Keywords:</td>
<td>DG MOSFET, Gate Misalignment, Threshold voltage roll off, Drain current degradation, Surface potential variation</td>
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<th>Authors:</th>
<th>Surekha Lanka, Sidra Ehsan</th>
</tr>
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<tbody>
<tr>
<td>Paper Title:</td>
<td>Pro-Log Software Design Methodologies In Universities</td>
</tr>
<tr>
<td>Abstract:</td>
<td>This paper shows us reasons for using the ProLog and its features. Present achievement of technologies, selecting of artificial intelligence to ensure to prove the knowledgeable, aware of the character or nature of facts and rules by the visual ProLog. It is a high-status tool in programming, artificial intelligence and used for the development of expert systems. This dissertation is on tutorial to understand visual ProLog for someone who is studying in universities. It also helps in developing different applications in real time to enter a particular profession. And also we will consider general facts and testing with the Visual ProLog software.</td>
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<tr>
<td>Keywords:</td>
<td>Compound domain, Expert system, IDE, knowledge base, VIP.</td>
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<tr>
<th>Authors:</th>
<th>Tejveer Singh Anand, Satinder Singh</th>
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<tbody>
<tr>
<td>Paper Title:</td>
<td>Unleashing Nature's Power in Residential Sector- An Another way to Save Energy Resources: An Empirical Study</td>
</tr>
<tr>
<td>Abstract:</td>
<td>Residential sector is one of the prime area where energy saving can be implemented under win-win situation by installing solar street lighting system. Manufacturers, Suppliers, promoters and even Govt. bodies may take a lead part as being undertaken for the Govt. organizations / installations</td>
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10. | 46-50 |
through DGS&D rate contract with subsidized rate for residential sector too. An empirical study has been conducted from ten different housing societies of Ahmadabad urban area those covered under co-operative housing societies and researchers found that there are lots of scope to save energy by just switching over to solar street lighting system with LED lamps from the conventional street lighting that will not only boost towards renewable energy use but saves lots of energy resources whether it is coal or oil as input fuel to thermal power plant.

**Keywords:** Solar Street Lighting, Solar Cell, LED Lamps, Residential sector

**References:**