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PROCEEDINGS OF "CONFERENCE ON RECENT ADVANCES IN BIOMATERIALS DEC 17-18 '10"

HELD AT SAVEETHA SCHOOL OF ENGINEERING, SAVEETHA UNIVERSITY, THANDALAM, CHENNAI-602 105, TAMILNADU, INDIA

SAVEETHA UNIVERSITY
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"Conference on Recent Advances in Biomaterials Dec 17-18 '10"
Held at Saveetha School of Engineering, Saveetha University, Thandalam, Chennai-602 105, Tamilnadu, India

SCOPE OF THE CONFERENCE

"The conference will provide a platform for discussing current advancements and future trends in biomaterials for medical and pharmaceutical applications. Through the synergistic approach of applied chemistry and physics, material science, electronics, mechanical engineering, biochemistry and medicine, this Conference on biomaterials includes how the deeper insight into biological events and its interplay with nanotechnology may support the development of a generation of novel materials, micro-nano-devices and molecular level approaches suited to solve relevant biomedical problems both for therapy and diagnostics. The conference will provide an excellent opportunity to meet and forge collaboration with large number of experts with diverse specializations including engineering, basic sciences, medical and dental professionals, etc. For the research scholars and students, CRAB 2010 will be an eye opener and an excellent opportunity to meet experts from various institutions in India and abroad."

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THEME 4
BIO-POLYMERS, CERAMICS, GLASSES CORROSION AND PROPERTIES OF BIOMATERIALS

Abstract id:9

VOLTAGE AND CURRENT BASED MAXIMUM POWER POINT TRACKING OF A SOLAR PHOTOVOLTAIC PANEL

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Solar panel is a power source having nonlinear internal resistance. As the intensity of light falling on the panel varies, its voltage as well as its internal resistance both varies. It is necessary to operate a solar photovoltaic panel at its maximum power point to achieve high efficiency and maximum power transfer. Maximum power point trackers (MPPT) are used to operate a photovoltaic panel at its maximum power point. To extract maximum power from the panel, the load resistance should be equal to the internal resistance of the panel. In this paper, voltage-based and Current-based maximum power point tracking methods are discussed to track the maximum power point of the panel. An unloaded pilot PV panel, with characteristics similar to those of main PV panel is used to measure the open-circuit voltage and short circuit current. The main PV panel is never disconnected from the load, resulting in increased energy output. The MPPT is simulated and studied using PSPICE.
Keywords: PSPICE.

Abstract id:10

SIMULATION OF CAPACITOR AND DIODE-CLAMPED FIVE LEVEL MULTILEVEL INVERTER USING SIN PWM TECHNIQUE

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A new capacitor and diode-clamped multilevel inverters termed Capacitor and Diode-Clamped Five Level Multilevel Inverter Using Sin PWM Technique operation is proposed. Such operation aims to avoid the imbalance problem of the dc-link capacitors for multilevel inverters with more than three levels and reduces the dc-link capacitance without introducing any significant voltage ripple at the dc-link nodes. The proposed operation can be generalized for any number of levels. The validity of the proposed multilevel inverter operational mode is confirmed by simulation of five-level capacitor and diode-clamped inverter using sin PWM Technique. The diode-clamped multilevel inverter concept can be modified to operate in a five -level inverter yet facilitate device voltage sharing with minimal dc-link capacitance. The Maximum output ac voltage is possible for a given dc-link voltage.The multilevel concept is based on a step approximation to a sinusoidal voltage. Multilevel inverters belong to the inverter circuit family, where the output voltage comprised more than two intermediate discrete voltage levels. The purpose of these circuits is to generate a high-voltage waveform using lower voltage rating switching devices connected in series. The output power due to its high number of output levels, and results in high conversion efficiency and low thermal stress as it uses a fundamental frequency switching scheme.
Keywords: high conversion efficiency, low thermal stress

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Abstract id:13

STUDY ON THE REMOVAL OF COPPER (II) IONS IN AQUEOUS SOLUTION USING SAMENEA SAMAN CARBON

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The amount of heavy metal ions released to the environment has been increasing significantly resulting from industrial activities and technology development. Heavy metals can arise from many sources such as steel production, electroplating, leather tanning, nuclear power plant, textile industry and purification of metals. The wastewater commonly contains Cu, Ni, Cd, Cr, and Pb which are not biodegradable and their accumulation in ecological system can cause harmful effects to human, animals and plants. Heavy metal removal from waste water is a subject of great interest in the environmental field. Ion exchange, electrolysis, precipitation, reverse osmosis, flotation, membrane filtration, electrochemical treatment, adsorption etc., are commonly used processes for the removal of heavy metal ions from wastewater. Recently, adsorption/biosorption process is being widely used by various researches for the removal of heavy metals from dilute waste streams. In the present study, an adsorbent is prepared from the Samenea saman and used for copper (II) ions removal from aqueous solutions Samenea saman are activated by giving heat treatment and with the use of concentrated sulphuric acid. The parameters investigated in this study include pH, contact time. Initial copper (II) ion concentration, temperature, adsorbent dosage and desorption. The adsorption process of copper (II) ion was tested with Langmuir and Freundlich isotherm models. The mechanism of adsorption for that Copper ion onto carbon have investigated by using the experimental results and confirmed by FT – IR, XRD and SEM images.

Key words: Activated Samenea saman carbon (SSC), copper (II) ion, adsorption isotherm, equilibrium, kinetic and thermodynamic parameters, intraparticle diffusion, and regeneration pattern.

Abstract id:24

EXPERIMENTAL INVESTIGATION ON RETARDING NOX EMISSIONS IN A DI DIESEL ENGINE BY USING THERMAL BARRIER COATINGS MATERIALS

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Diesel engines are increasingly becoming important because of their fuel economy and efficiency. Now-a-days, ceramic coating over the cylinder head, valves and the piston top surfaces are provided for thermal insulation. These thermal barrier coatings reduce the heat transfer from the combustion chamber to the cooling jackets and to the atmosphere. This paper presents the investigation of the temperature distribution over the cylinder head, valves and the piston resulting from coating those using partially Stabilized Zirconia (PSZ) thermal barrier coatings. In the experimental study the effects of injection timing on nitrogen oxide (NOx) emissions of a low heat rejection.

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Keywords: Stabilized Zirconia (PSZ), on nitrogen oxide (NOx

Abstract id:95

DENTURE BASE POLYMERS ON A REVIEW

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The history of using materials to restore the lost or damaged oral tissues is as old as human civilization. Several materials have been used to make dentures such as metals, ivory and bone, natural and synthetic polymers. Over the years, several modifications have been done to these materials to improve their clinical performance and patient satisfaction. Starting with wood to the current day poly(methyl methacrylate) and its modified versions, denture base materials composition has been dynamic with constant modifications. These modifications aim to improve the mechanical characteristics, facilitate processing and to improve patient acceptances etc. Such modifications are brought about by either copolymerization of the base polymer with other monomers or simply by blending of new materials to the base polymer. In this paper, a review of evolution of denture bases is covered an emphasis on the materials composition and chemistry related to the clinical performance of the material.
Keywords: day poly(methyl methacrylate, monomers

Abstract id:86

BIOGLASS AND ITS APPLICATION IN DENTISTRY

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The use of bioglass has revolutionized the concept of grafting in dentistry. This paper looks into the property development and application of bioglass in the field of dentistry.

Abstract id:71

GLASS IONOMER CEMENT – A VERSATILE MATERIAL OF CHOICE IN RESTORATIVE DENTISTRY

Dr. Manish Ranjan,Dr. C. V. Subba Rao**

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For the past three decades major development has taken place in the field of dental materials, with the advent of adhesive dentistry, which has revolutionized their application in various clinical conditions. Glass ionomer cement was invented by KENT and WILSON in the year 1972. It has been accepted as an ideal material of choice internationally.The reason for its acceptance as an ideal biomaterial is attributed to the unique properties such as adhesion to the tooth structure, anti-cariogenic property, thermal compatibility to tooth enamel, low shrinkage and biological acceptance .

Keywords: WILSON, anti-cariogenic property

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Abstract id:68

BIOGLASS: A NEWER REGENERATIVE MATERIAL

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Historically, the function of biomaterials has been to replace diseased or damaged tissue. BIOGLASS, a particular form of an established bio-active, bioabsorbable material that remains at the forefront of tissue engineering developements, for its wide use in orthopaedics,dentisry and cosmetics. Recent studies also show that controlled release of the ionic dissolution products of bioactive glass results in regeneration of tissues.The composition, uses, advantages and disadvantages of bioglass will be discussed in detail at the venue.

Keywords:BIOGLASS,orthopaedics,dentisry

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