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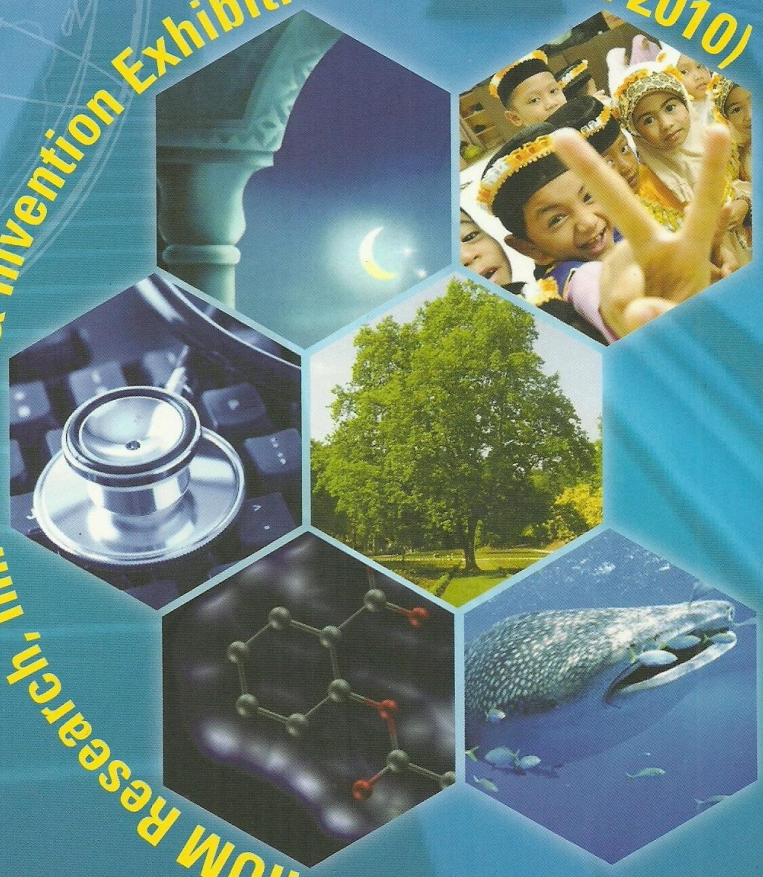

ENHANCING QUALITY RESEARCH & INNOVATION for SOCIETAL DEVELOPMENT

P-103 Cauchy-Goursat Theorem

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In this article, we have presented a simple and un-conventional proof of a basic but important Cauchy-Goursat theorem of complex integral calculus. The pivotal idea is to sub-divide the region bounded by the simple closed curve by infinitely large number of different simple homotopically closed curves between two fixed points on the boundary. Beauty of the method is that one can easily see the significant roll of singularities and analyticity requirements. We suspect that our approach can be utilized to derive simpler proof for Green's, Stoke's theorems and the generalization to Gauss's divergence theorem.

P-104 Photovoltaic Properties of Semiconductor (ZnSe) / Polymer (PEO Chitosan blend) / Semiconductor (ZnTe) Double Junction for Solar Cells Applications

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A double junction photovoltaic cell has been fabricated using a thin film plastic electrolyte to connect in optical and electrical series thin films of ZnSe and ZnTe semiconductors. The electrolyte used in this work was a thin film of poly (ethylene oxide) (PEO) complexed with NH_4I ($+I_2$) which was prepared by solution cast technique. In this paper the photovoltaic properties of ZnSe / PEO / ZnTe double junction has been studied for the purpose of solar cells applications. In our earlier studies, thin films of cubic, ZnSe and ZnTe by electrochemical plating on ITO conducting substrates were first fabricated and studied thoroughly as an initial step. Adding Chitosan to the polymer during preparation has improved the rubbery web-like morphology of the polymer and hence leads to better photo-conversion efficiency. The best room temperature conductivity of PEO was observed for sample 45% ammonium iodide with a value of 4.32E-6 S cm^{-1}. An open circuit voltage V_{oc} of 500 mV and a short circuit current I_{sc} of (2.3 $\mu A/cm^2$) were obtained under illumination of 18 W with a neon lamp.

P-108 Lactic Acid Production from Kenaf Fibre

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Lactic acid is a useful polymer that can be applied in various purposes such as preservative, acidulant, and flavor in food, textile, and pharmaceutical industries, and a raw material for lactate ester, propylene gylcol, 2,3-pentanedione, propanoic acid, acrylic acid, acetalaldehyde, and dilactide in chemical industries. In polylactic acid production, the common starch or cellulose sources which basically used are from food crops sources where their prices are so high resulted in competition with other fieldsâ€™ demands. As if the raw materials are considerably high, it may result in high cost production of polylactic acid. Indeed, the fermentation technique also have to ensure contribute to less environment effect since it involved chemical solution. Therefore, in this study kenaf fibre waste has offers cost effective of raw material and this kenaf fibre has been treated for Lactobacillus rhamnosus fermentation to produce polylactic acid. The chemical solution used in this study also considered less harm to environment since they are type of organic acid. Hence, this study tried to produce polylactic acid (PLA) that offers cost effective and environmentally friendly. Moreover, the successful obtaining PLA then had been compared to the existing commercial PLA in terms of their properties.