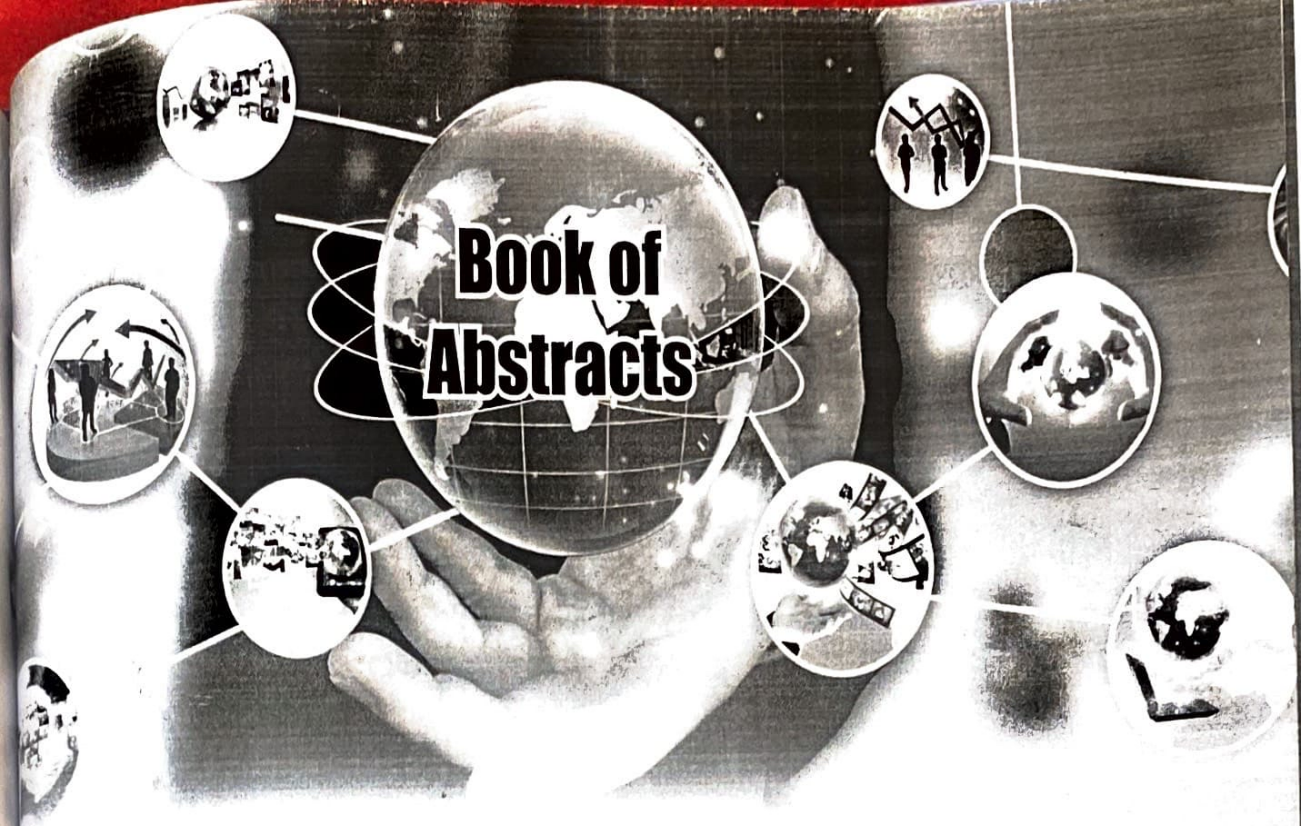

27th Swadeshi Science Congress

Focal Theme:

ience and Technology for Societal Development

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VISHWA VIDYAPEETHAM
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Many methods have been developed to determine the thermal properties of materials with different forms. Among the existing methods, photothermal phenomena has emerged as a potential tool of non-destructive evaluation. Thermal diffusivity of the material is a very important parameter and it is closely related to thermal conductivity, specific heat and thermal expansion.In the present work, nanocrystalline titanium dioxide (TiO_2) synthesized by sol-gel method is annealed at different temperatures and dispersed in water to form nanofluids. The thermal diffusivity variations of the prepared nanofluids are studied by single beam thermal lens technique. It is observed that the thermal diffusivity increases with the annealing temperature and with the amount of oxalic acid. From the XRD analysis, it is observed that the transition of anatase phase to rutile phase occurs with the increase in temperature. Thus the increase in thermal diffusivity may be due to the phase changes occurring in the sample. Along with the increase in the amount of oxalic acid, the percentage of the most stable rutile phase and particle size increases. The observation of increasing value of thermal diffusivity in this case confirms the role of phase transition in deciding the thermal diffusivity of titanium dioxide nanofluid. Thus the study offers a possible mechanism for tuning the thermal diffusivity value of the nanofluid through phase control.

BSD-MPC EP-13 : Science and Technology for Societal Development

ADSORPTION OF Th(IV) FROM AQUEOUS MEDIA BY EGDMA GRAFTED NANOCELLULOSE - GRAPHENE OXIDE COMPOSITE

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The adsorption process is used especially in water treatment field and numerous attempts have been made by researchers worldwide to develop inexpensive, efficient, and environmentally friendly polymeric adsorbents for the removal of radioactive nuclides from water. Use of different types of graft copolymers and networks based on nanocellulose is an area of recent research interest in the field of active polymer supports for metal adsorption. In the present study a novel adsorbent, EGDMA grafted nanocellulose – graphene oxide composite (EGDMA-NC/GO) for the removal of Th(IV) from aqueous media was synthesized and characterized by FTIR, SEM-EDS, TG/DTA and XPS analysis. The adsorption of Th(IV) from aqueous media was studied in a