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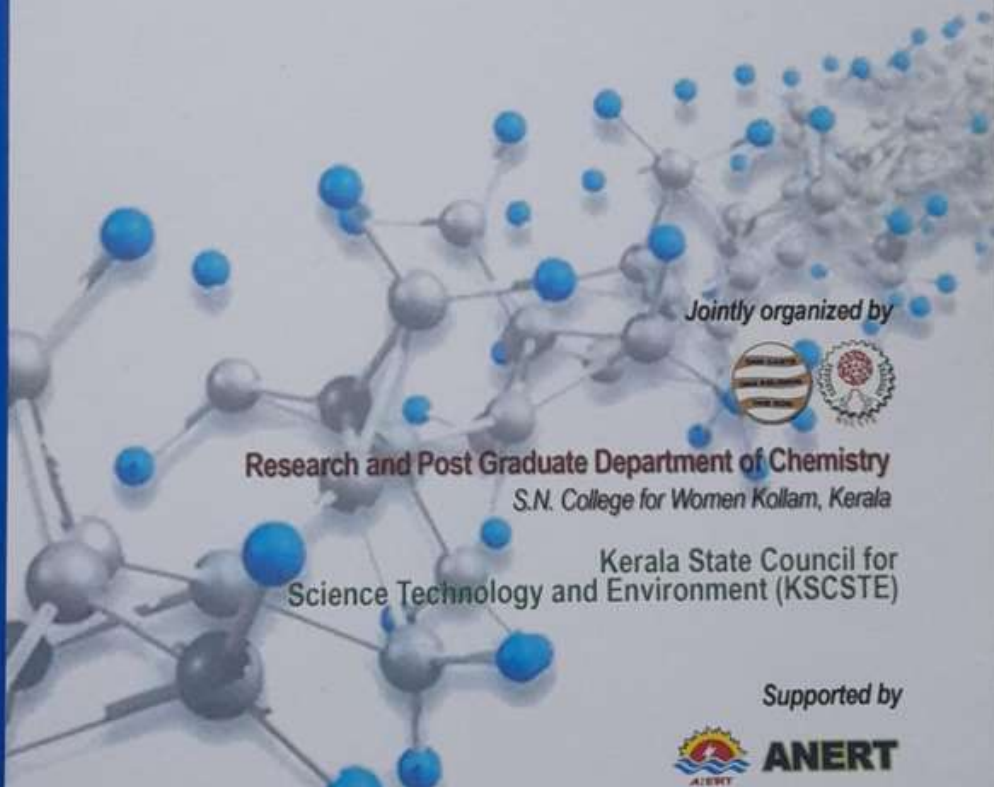
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PROCEEDINGS



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Advanced Ceramics, traditionally a choice for structural applications, has recently displayed properties for a variety of functional applications ranging from thermal imaging to thermal barrier coatings. Poly crystalline ceramics, when hundred percent dense can be transparent to electromagnetic radiations in the wavelength region of 0.4 to 10 microns. The transparency in visible and infra red regions renders them serviceable for applications such as thermal imaging, optical lighting and aesthetic dental ceramics. Alternatively, rare earth phosphates like lanthanum phosphate by virtue of their low thermal conductivity values can function as thermal barrier and insulation coatings. The non reactivity towards molten metals, including that of radioactive ones, makes them a potential candidate for lubricious coatings at high temperatures. The CO₂ absorption property of lithium silicate is widely explored for high temperature CO₂ capture and hence is useful for catalysing certain industrially applicable reactions at 450°C. The presentation summarises the material processing efforts made in these regards to develop competent technologies indigenously.

IT 08

ADVANCED FUNCTIONAL MATERIALS FOR ENERGY EFFICIENT BUILDINGS

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Abstract

A major portion of the total energy produced in the modern world is inefficiently used to ventilate and control humidity in buildings, heat and cool and to meet the high thermal comfort levels. The efficient use of sophisticated materials and passive technologies in constructions would significantly reduce the energy demand and reduce the environmental pollution. Advanced building materials are used to improve the built environment, occupant comfort in buildings (by efficient heat and mass transport), effective ventilation and health & safety requirements. The presentation gives an introduction in the field of development of advanced materials and sustainable technologies for energy efficient buildings. The presentation begins with the essentiality of energy efficient buildings and environmental profiling of advanced building materials. Moreover the presentation explores the significance of improving energy efficiency and thermal comfort through material selection and