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Increasing the triboluminescence of europium tetrakis dibenzoylmethide triethylammonium for its use as an impact sensor

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As mankind continues to extend technological boundaries, sensors must be improved in order to keep pace. A current problem facing engineers and scientists is how to actively monitor structures for damage. There are a number of techniques currently being used for damage detection; however, the major drawbacks of the current techniques are they do not provide in-situ and distributed sensing. Wiedemann and Schmidt defined triboluminescence (TL) as the emission of light produced by mechanical action. In recent years, triboluminescent materials have been proposed for use as the active element in smart structural sensors. To sense damage, these materials would be embedded into the structure. When damage occurs to this structure, the embedded triboluminescent material would give off visible light. This light could be transferred by lightweight fiber optics or wireless detector to a computer-based detection system that is capable of real-time monitoring of both the magnitude and location of the structure damage. Over the past decade, we have been advancing this technology on both the material and application sides. In 2010, a triboluminescent sensor capable of determining the amount of impacts that have taken place was being developed. Later in 2013, significant strides in increasing the triboluminescence emitted from europium tetrakis dibenzoylmethide triethylammonium (EuD_4TEA), i.e., one of the brightest known materials, six fold were made. This talk will discuss these advances in EuD_4TEA .

Biography

Ross S Fontenot is currently an Assistant Research Professor of Physics at the University of Louisiana at Lafayette and Senior Editor for Editage. He has published more than 30 papers on triboluminescence and materials synthesis in some of the leading journals in the field including *Journal of Luminescence*, *Materials Today*, *Polymer Journal*, *CrystEngComm*, and *Crystal Research and Technology*. He has also given presentations on a variety of scientific topics at scientific conferences all over the United States.

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Design, synthesis, and applications of nanofluids: Review

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Nanofluids are stable suspensions of nanoparticles (1-100nm) in base fluids that show many interesting properties, and their distinctive features offer unprecedented potential for many applications. This review summarizes the development of nanofluids through various routes and presents the broad range of current and future applications in various fields including nuclear reactors, transportation, electrical energy, mechanical, magnetic, solar absorption, and biomedical fields. However, few barriers and challenges that have been identified due to size shape and temperature must be discussed carefully before it can be fully implemented in the industrial applications.

Biography

S V Ranganayakulu, Dean R&D, in Guru Nanak Institutions, Technical Campus, completed MSc (Physics) with Electronics as specialization and MPhil (Physics) from Andhra University. He obtained his PhD from Osmania University. He has 23 years of teaching as well as administrative experience at Postgraduate and Undergraduate level at various institutions. He is Fellow of Acoustical Society of India and Ultrasonic Society of India and gave invited talk in International and national conferences. He is executing two R&D projects in the area of Non Destructive Testing and Evaluation sanctioned by AICTE under Research Promotion scheme and BRFST under Department of Atomic Energy. He has published 3 text books and was reviewer for various national and international journals.

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