

**Online Aerogel Seminar 2020" (16-18 September, 2020)**

**Preference:** Oral

**Title:** Temperature Sensing in Aerogels by Means of Phosphor Thermometry

**Abstract:** Technological advances in synthesis and preparation of aerogels have resulted in formulations that have the mechanical integrity (while retaining flexibility) to be utilized in a broad range of applications and have overcome the initial brittleness that this class of materials was once known for. Aerogels are being used extensively for a variety of thermal insulation purposes as well as biomedical and biological devices and applications. The growth in popularity and demand for aerogels and the improvements in aerogel performance highlight the need for non-invasive probing techniques that can provide bulk and surface information of aerogel physical properties. Phosphor thermometry offers unique advantages over traditional forms of temperature sensing. Here, the author reports on recent efforts that have focused on using phosphor thermometry as an interrogation tool for aerogels to gather thermal and structural information in monolithic aerogels. Results show the feasibility of this technique for remote, precise, and rapid sensing applications in aerogels and aerogel composites. The excitation/ emission characteristics of phosphors can be tailored to fit the application at hand and will be reviewed in this presentation.

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