

## Study of Imprinting Behavior of Luminescent Dyes in Sol-Gel Matrices

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### **Abstract:**

Hybrid gel incorporated with functional organic molecules is interesting for their chemical, physical properties. The microstructures have potential application e.g. organic dye incorporated silica gels for laser, nonlinear optical materials, chemical sensors, color filters, luminescent solar concentration, coating for glass bottle which can be recycled etc. Investigating the mechanism of encapsulation will give deeper information of sol-gel process and can be extended for different application such to obtain the desirable pore sized silica material. Silica material with different pore size is of great interest as they can be exploited in various areas.

In this project we will investigate the encapsulation event with poorly soluble luminescent dye compound. Diazo compounds are known to give photo-isomerism and we will study porogenic properties through physically and covalently anchored system, using with and without *trans/cis/trans* photo-isomerism moieties. The result in product silica will be material with porosity of different pore size; porosity gives essential information about pH dependences, light response, and encapsulation instant. Fluorescence studies made will give essential information about dispersion and aggregation of dye molecule in sol gel matrix, whereby this effect can also be investigated in encapsulation process.