

## DYNAMIC STUDIES OF BOTH NON-EQUILIBRIA AND EQUILIBRIA PHENOMENA IN SILICA SOL-GEL MATERIALS

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Silica sol-gel syntheses are among the most widely used and studied synthetic methods in the materials field. However there lacks a fundamental understanding of how these materials gel and what is happening dynamically inside of the pores of these materials. In this study, we adapt a typical silica sol gel synthesis so as to introduce an intrinsic probe (a SiH stretch) throughout the material. Using these probes and two-dimensional infrared spectroscopy (2DIR) we have monitored the molecular motions (solution dynamics) of the solution as it approaches gel formation. After gel formation we can then study the solution dynamics inside the pores of these materials.