

Abstract Submitted
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A new, non-destructive, real-time measurement technique of the surface area of aerogel during synthesis YANG SHEN, Tongji University, Shanghai, China, JEONGSEOP A. LEE, W. P. HALPERIN, Northwestern University — We have developed a new method of measuring surface area of silica aerogel during the synthesis stage using a standard pulsed NMR setup. The applicability of this method can be extended to a much broader type of chemical reactions yielding a rigid porous condensate whose surface relaxation rate differs substantially from its surrounding liquids. The number of various chemical species involved in the reaction poses little to no limitation to its applicability owing to the physics in the fast exchange limit. This is the main distinguishing feature from a conventional NMR or infrared spectroscopy method in which individual chemical bondings from various reaction intermediaries are tracked in time which is often difficult if not impossible due to complex reactions. The result from this technique yields a surface area that is analogous to the result from a well-established BET (Brunauer-Emmett-Teller) technique, but without the need for extraction or supercritical extraction of the porous medium. This work was supported by the DOE BES under grants No. DE-FG02-05ER46248.

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