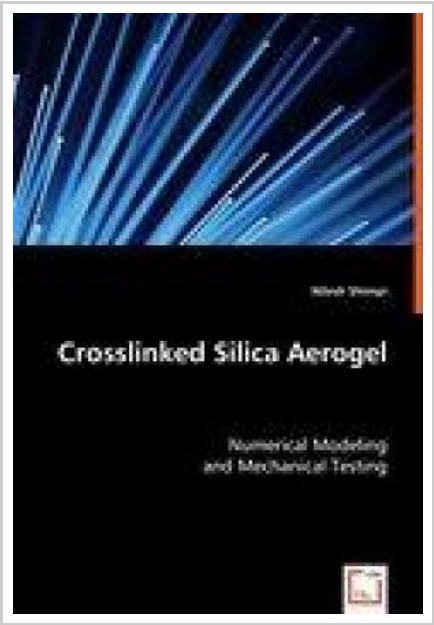

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Crosslinked Silica Aerogel

By Nilesh Shimpi

VDM Verlag Jun 2008, 2008. Taschenbuch. Book Condition: Neu. 220x150x6 mm. This item is printed on demand - Print on Demand Neuware - Silica aerogel are highly porous nanostructured solids materials with wide range of applications. However silica aerogels are inherently fragile and brittle. Thus, their use in load-bearing applications presents a challenge. In this book, mechanical behavior of nanostructured silica aerogel is characterized under compression and three-point bending tests. In order to develop a better understanding of the synergistic stiffening and strengthening mechanism of the crosslinker a numerical model was developed using Particle Flow Code ®. The compressive strength increased 40 times the strength of plain silica aerogels. Testing was also carried out under different strain rates and temperatures. In flexural tests the stress-strain curve obtained showed a perfect elastic behavior and the 'conchoidal' fracture morphology. The results from numerical modeling emphasis need for a better algorithm that can generate the silica aerogel structure. Also the quantitative parameters determined from modeling need to be experimentally validated. 80 pp. Englisch.

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Reviews

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