

Abstract Submitted
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Quantification of molecular topology using small angle scattering. RAMNATH RAMACHANDRAN, DURGESH RAI, GREGORY BEAUCAGE, University of Cincinnati — A recent method to quantify molecular topology of various materials using small angle scattering will be presented. Small angle x-ray and neutron scattering has been used to characterize ceramic aggregates and polymer structures systems respectively. The structural differences in various systems arise from the competition between thermal and spacial constraints. The details in ceramic aggregates like branch fraction, number of segments in an aggregate and the short circuit path, coordination number, the number end groups *etc* are extracted. Amongst the polymer systems, details of topological quantification of polymer systems such as stars, cyclics and branched polymers like polyolefins will be presented. In polyolefins, the method provides a unique measure of the average long-chain branch length and the hyperbranched (branch-on-branch) characteristics. The quantification using scaling models are important in order to understand the structure-property relationship amongst materials.

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