

Abstract Submitted  
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**Investigations into aggregate growth dynamics *via in situ* structural quantification of flame synthesized silica nanoparticle aggregates** DURGESH RAI, GREGORY BEAUCAGE, University of Cincinnati, JAN ILAVSKY, Argonne National Laboratory, HENDRIK KAMMLER, Clariant Corporation, SOTIRIS PRATSINIS, ETH Zurich — Ramified aggregates are formed in many dynamic processes such as in flames. The structures are disordered and present a challenge to quantification. The topological quantification of such nanostructured materials is important to understand their growth processes. Small-angle X-ray scattering (SAXS) is widely used to characterize such nanoparticle aggregates. Recently, we have developed a method for the quantification of topology in aggregated material using SAXS. This methodology will be used to describe topologies from *in-situ* SAXS studies on flame synthesized silica aggregates on millisecond time scales. This is an important step to facilitate understanding of the growth dynamics and the structural rearrangements that occur during flame synthesis.

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