

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: RMD movie showing the formation of ordered OLC from amorphous carbon matrix containing uniformly dispersed S atoms (15% S concentration) during cooling from 1000 K to 300 K over 2 ns. Initially, the S atoms (shown in yellow) segregate resulting in C-rich domains (shown in brown). Subsequently, the C atoms within these domains organize into well-ordered nanostructures with onion-like morphology. In this movie, we present the magnified view of a representative C-rich region (red circle), where graphitic structures nucleate, and grow into well-ordered OLC with trace amounts of sulfur. The OLC consists of multiple concentric spheres of C, each possessing graphitic order, held together by dispersive forces.