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Quantitative description of orientational order in non-graphitic carbons ENSHI XU, VINCENT CRESPI, Department of Physics, Penn State University — The key factor that determines the ability to graphitize of a non-graphitic material is believed to be the level of orientational disorder which indicates how well the elemental structures are aligned. To characterize the disorder, we have developed a correlation function with multiple variable dependencies, such as radial distance and zenith angle. Through the characteristic parameter of the function, the ability to graphitize can be determined given the structure of a carbon material. The model is applied to a set of non-graphitic structures, which is generated systematically in non-conventional methods that emphasize to represent the orientational order of the carbon material rather than to match the radial distribution function.

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