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Nota di contenuto	Cover; Title Page; Copyright; Contents; Preface; Introduction; 1: Literature Survey; 2: Calculation of Two-Point Correlation Functions; 3: Approximate Solution for N-Point Correlation Functions for Heterogeneous Materials; 4: Reconstruction of Heterogeneous Materials Using Two-Point Correlation Functions; 5: Homogenization of Mechanical and Thermal Behavior of Nanocomposites Using Statistical Correlation Functions: Application to Nanoclay-based Polymer Nanocomposites; 6: Homogenization of Reconstructed RVE; APPENDICES Appendix 2: Verification of the Boundary Conditions for the Approximated Four-Point Probability Function Bibliography; Index; Other titles from ISTE in Materials Science; ELUA; 1.1. Random heterogeneous material; 1.2. Two-point probability functions; 1.3. Two-point cluster functions; 1.4. Lineal-path function; 1.5. Reconstruction; 1.6. Homogenization methods for effective properties; 1.7. Assumption of statistical continuum mechanics; 1.8. Representative volume element; 2.1. Introduction; 2.2. Monte Carlo calculation of TPCF; 2.3. Two-point correlation functions of eigen microstructure

2.4. Calculation of two-point correlation functions using SAXS or SANS data  
2.5. Necessary conditions for two-point correlation functions; 2.6. Approximation of two-point correlation functions; 2.7. Conclusion; 3.1. Introduction; 3.3. Approximation of four-point correlation functions; 3.4. Approximation of N-point correlation functions; 3.5. Results; 3.6. Conclusions; 4.1. Introduction; 4.2. Monte Carlo reconstruction methodology; 4.3. Reconstruction procedure using the simulated annealing (SA) algorithm; 4.4. Phase recovery algorithm  
4.5. 3D reconstruction of non-eigen microstructure using correlation functions  
4.6. Conclusion; 5.1. Introduction; 5.2. Modified strong-contrast approach for anisotropic stiffness tensor of multiphase heterogeneous materials; 5.3. Strong-contrast approach effective to thermal conductivity of multiphase heterogeneous materials; 5.4. Simulation and experimental verification; 5.5. Results and discussion; 5.6. Conclusion; 6.1. Introduction; 6.4. FEM analysis of debonding-induced damage model for polymer composites; 6.5. Conclusion and future work  
2.6.1. Examination of the necessary conditions for the proposed estimation

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