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Removal of Particles and its Applications to Self-Cleaning Solar Panels and Solar Concentrators; 1.Introduction; 2.Solar Power Potential and the Global Energy Needs; 3.Atmospheric Dust and Its Deposition on Solar Panel; 4.Loss of PV Output Power Caused by Dust Deposition; 5. Electrostatic Charging of Dust Particles; 6.Dust Deposition Process: Effects of Size and Charge Distributions; 7.Transmission Loss Due to Atmospheric Dust; 8.Experimental Studies on Solar Panel Obscuration by Dust Deposition
9.Effect of Microstructural Deposition Pattern: Particle Size, Shape, and Electrostatic Charge Distributions10.Removal of Dust From Solar Panels Using Low-Power Electrodynamic Screens; 11.Trajectories of Charged Particles on the Electrodynamic Screen; 12.Dielectrophoretic Force; 13. Tribocharging of Particles; 14.Removal of Uncharged Conducting Particles; 15.High-Voltage Three-Phase Power Supply for the Electrodynamic Screen; 16.Testing of the Electrodynamic Screen; 17. Measurement of Maximum Power Point Operation of the PV System With EDS
18.Testing the Solar Panels Integrated With EDS for Maximum Power Point Operation19.Results; 20.Summary and Conclusions; Acknowledgments; References; Chapter 6 -Alternate Semi-Aqueous Precision Cleaning Techniques: Steam Cleaning and Supersonic Gas/Liquid Cleaning Systems; 1.Introduction; 2.Precision Steam Cleaning; 3.Supersonic Gas-Liquid Cleaning; 4.Summary; Acknowledgments; Disclaimer; References; Index

Sommario/riassunto

The contributions in this volume cover methods for removal of particle contaminants on surfaces. Several of these methods are well established and have been employed in industrial applications for a long time. However, the ever- higher demand for removal of smaller particles on newer substrate materials is driving continuous development of the established cleaning methods and alternative innovative methods for particle removal. This book provides information on the latest developments in this topic area. Feature: Comprehensive coverage of innovations in surface contamination a
