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of high molecular weight polymers on the properties of electrospun nanofibers4.5 Improving the properties of electrospun nanofibers: experimental results; 4.6 Conclusions; 4.7 References; 5 Controlling the morphologies of electrospun nanofibres; 5.1 Introduction; 5.2 The electrospinning process and fibre morphology; 5.3 Polymer concentration and fibre diameter; 5.4 Fibre bead formation and fibre surface morphology; 5.5 Controlling fibre alignment and web morphologies; 5.6 Bicomponent cross-sectional nanofibres
5.7 Future trends5.8 Acknowledgements; 5.9 References; Part II Carbon nanotubes and nanocomposites; 6 Synthesis, characterization and application of carbon nanotubes: the case of aerospace engineering; 6.1 Introduction; 6.2 The development and structure of carbon nanotubes; 6.3 Synthesis of carbon nanotubes; 6.4 Characterization techniques; 6.5 Purification techniques; 6.6 The use of carbon nanotubes in aerospace engineering; 6.7 Nanostructured composite materials for aerospace applications; 6.8 Nanostructured solid propellants for rockets
6.9 Frequency selective surfaces for aerospace applications6.10 Other aerospace applications of carbon nanotubes; 6.11 Conclusions; 6.12 Acknowledgments; 6.13 References; 7 Carbon nanotube and nanofibre reinforced polymer fibres; 7.1 Introduction; 7.2 Synthesis and properties of carbon nanotubes; 7.3 Developing nanotube/nanofibre-polymer composites; 7.4 Adding nanotubes and nanofibres to polymer fibres; 7.5 Analysing the rheological properties of nanotube/nanofibre-polymer composites; 7.6 Analysing the microstructure of nanotube/nanofibre-polymer composites
7.7 Mechanical, electrical and other properties of nanocomposite fibres

Sommario/riassunto

Nanotechnology is revolutionising the world of materials. This important book reviews its impact in developing a new generation of textile fibers with enhanced functionality and a wide range of applications. The first part of the book reviews nanofiber production, discussing how different fiber types can be produced using electrospinning techniques. Part two analyses the production and properties of carbon nanotubes and polymer nanocomposites and their applications in such areas as aerospace engineering. The third part of the book considers ways of using nanotechnology to improve polymer prope