Preface

Nanotechnology is one of the most exciting and dynamic fields to emerge over the last 100 years. Governments, industry and academia have invested huge amounts of effort and large sums of money on fundamental research in the search for new or improved applications. New insights have emerged and applications have been developed in semiconductor, automotive, aerospace, textile and cosmetics industries. Nanotechnology is widely expected to have a massive impact on commercial applications in the near future.

Nobel Laureate Richard P. Feynmans' vision, outlined in his famous lecture 'There is Plenty of Room at the Bottom', is finally being realised due to developments in the revolutionary 'microchip' technology that is clearly seen in devices that are now commonly found in electronics shops all over the world. Almost everyone is carrying around a supercomputer in their pockets in the form of a smart phone or tablet.

The academic impact of nanotechnology after Feynman has been recognised with Nobel Prizes being awarded to Curl, Kroto and Smalley for the discovery of C_{60} in 1996 and to Geim and Novoselov (2010) for their ground breaking work on the two-dimensional material Graphene. These and other developments provide a firm foundation for investigating the way in which these nanostructures can be adapted for use in medicine through the development of new electronic interfaces, coatings for medical devices and through the development of new drug delivery mechanisms to name but a few.

Nanomedicine and nanobiomaterials will revolutionise medical treatments and healthcare when interfaced with appropriate control electronics. Over the last 10 years the number of papers in nanomedicine and nanobiomaterials have exploded exponentially from all over the world, particularly from China. The interdisciplinary nature of nanotechnology brings people together from various disciplines, facilities and regions with the common objective of improving lives of everyone regardless of their background, culture and geographical location. It provides not only great scientific potential in terms of output but also provides a framework through which we can shape some of the most dynamic and exciting multidisciplinary research currently in practice

Nanotechnology is so broad that this work only presents a *'small'* perspective on nanotechnology with authors with interdisciplinary backgrounds coming together to provide important insights in nanobiomaterials. We hope that you find this book stimulating, useful and enjoyable and that it sparks your interest to explore this field further.

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