This book aims to give a comprehensive overview of Chemical Vapour Deposition (CVD). CVD involves the deposition of thin solid films from chemical precursors in the vapour phase, and encompasses various deposition techniques, including metal-organic chemical vapour deposition (MOCVD), plasma-enhanced CVD (PECVD), photo-initiated CVD and atomic layer deposition (ALD). The book has been written with the CVD practitioner in mind, such as the chemist who wishes to learn more about CVD process technology, or CVD technologists who wish to increase their knowledge of precursor chemistry. This book should prove useful to those who have recently entered the field, and certain aspects of the text may also be used in chemistry and materials science lecture courses at undergraduate and postgraduate level.

We have attempted to present a logical and progressive overview of the various aspects of CVD processes. Therefore, basic concepts, such as the various types of CVD processes, the design of CVD reactors, reaction modelling and CVD precursor chemistry, are covered in Chapters 1–5. This is followed in Chapters 6–12 by a detailed description of the use of various CVD techniques to deposit a wide range of materials, including semiconductors, metals, metal oxides and nitrides, protective coatings and functional coatings on glass. Finally, in Chapter 13, some commercial aspects of CVD are discussed. The development of CVD technology owes a great deal to collaboration between different scientific disciplines such as chemistry, physics, materials science, engineering and microelectronics, and it is hoped that this book will promote and stimulate continued dialogue between scientists from these different research areas.

We are greatly indebted to the chapter authors for their enormous effort in summarizing their extensive knowledge of many different aspects of CVD, especially in view of undoubted pressures from many directions. We are also grateful to the many members of our research staff, the unsung heroes of this volume, and it is hoped that the book will be a tribute to them. We must also acknowledge the hard work of the publishing staff at the Royal Society of Chemistry, in particular Mrs Annie Jacob and Mrs Janet Freshwater. Finally, our thanks go to our families and the families of our authors for their unstinting support and understanding.

Anthony C. Jones and Michael L. Hitchman
Liverpool and Glasgow