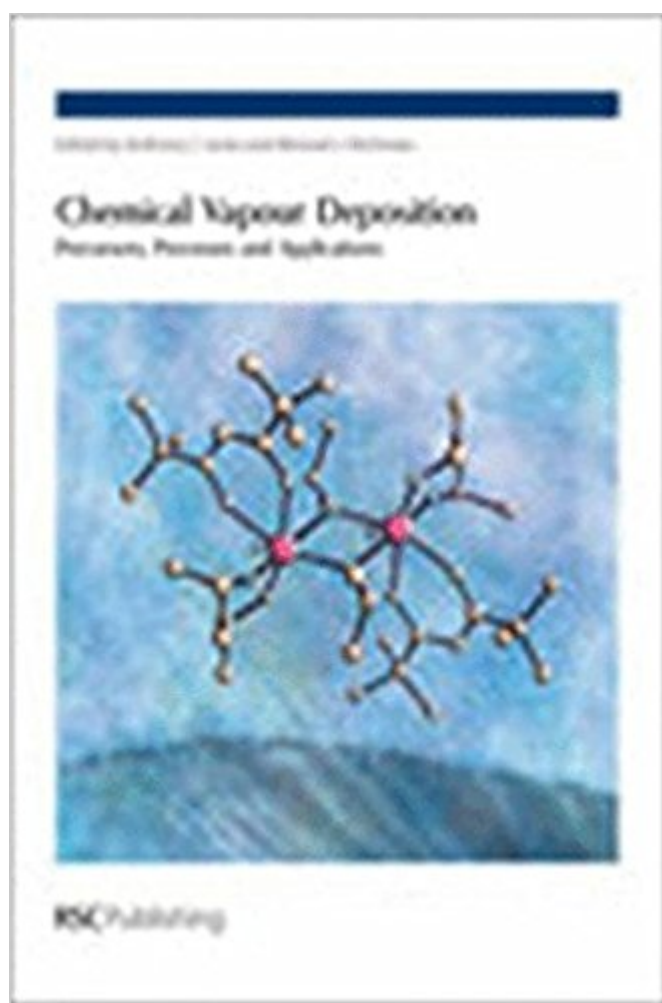




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Chemical Vapour Deposition: Precursors, Processes And Applications



Synopsis

Chemical Vapour Deposition (CVD) involves the deposition of thin solid films from chemical precursors in the vapour phase, and encompasses a variety of deposition techniques, including a range of thermal processes, plasma enhanced CVD (PECVD), photon- initiated CVD, and atomic layer deposition (ALD). 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 the publication of this book will promote and stimulate continued dialogue between scientists from these different research areas. The book is one of the most comprehensive overviews ever written on the key aspects of chemical vapour deposition processes and it is more comprehensive, technically detailed and up-to-date than other books on CVD. The contributing authors are all practising CVD technologists and are leading international experts in the field of CVD. It presents a logical and progressive overview of the various aspects of CVD processes. Basic concepts, such as the various types of CVD processes, the design of CVD reactors, reaction modelling and CVD precursor chemistry are covered in the first few chapters. Then follows a detailed description of the use of a variety CVD techniques to deposit a wide range of materials, including semiconductors, metals, metal oxides and nitrides, protective coatings and functional coatings on glass. Finally and uniquely, for a technical volume, industrial and commercial aspects of CVD are also discussed together with possible future trends, which is an unusual, but very important aspect of the book. The book has been written with CVD practitioners in mind, such as the chemist who wishes to learn more about CVD processes, or the CVD technologist who wishes to gain an increased knowledge of precursor chemistry. The volume will prove particularly useful to those who have recently entered the field, and it will also make a valuable contribution to chemistry and materials science lecture courses at undergraduate and postgraduate level.

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"...Timely and welcome...comprehensive, well-presented and refreshingly readable."...this book will be very useful to a broad readership, including chemists, engineers and students." (Chemistry and Industry, John Colligon, Manchester Met University.)

Written by leading experts in the field, this book gives a comprehensive overview of the various aspects of chemical vapour deposition processes and covers the basic concepts of types of CVD processes, the design of CVD reactors, reaction and reactor modelling, and the chemistry of CVD precursors and of deposition. There are detailed descriptions of the use of many CVD techniques to deposit a wide range of materials, including semiconductors, metals, metal oxides and nitrides, optical coatings, protective coatings and functional coatings on glass. Commercial aspects of CVD are also discussed, along with possible future trends. The book is aimed at CVD practitioners such as the chemist who wishes to learn more about CVD processes, or the CVD technologist wishing to gain an increased knowledge of precursor chemistry.

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