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Nota di contenuto	Part I Solution Chemistry -- Simple Alkoxide Based Precursor Systems -- Carboxylate Based Precursor Systems -- Mixed Metallo-Organic Precursor Systems -- Single Source Precursor Approach -Hydrolysis Mechanisms in Organic Media -- Aqueous Precursor Systems -- Polymer-Assisted Deposition (PAD) -- Part II Analytical Methods -- Thermal Analysis -- X-ray Absorption Spectroscopy -- Infrared Spectroscopy -- Part III Deposition Techniques -- Dip Coating -- Spin Coating: Art and Science -- Aerosol Deposition -- Inkjet Printing and Other Direct Writing Methods -- Chemical Bath Deposition -- Part IV Processing and Crystallization.- Thermodynamics and Heating Processes -- Epitaxial Films -- Orientation and Microstructure Design -- Low-Temperature Processing -- Composite Film Processing -- UV and E-Beam Direct Patterning of Photosensitive CSD Films -- Template Controlled Growth -- Part V Functions and Applications -- Thin Film Multilayer Capacitors -- Base Metal Bottom Electrodes -- Polar Oxide Thin Films for MEMS Applications -- Conducting oxide thin films --

Sommario/riassunto

This work presents a snapshot of the state of the art of modern biomolecular crystallography, from crystallisation through structure determination and even interactive presentation on the web. Methods driving the latest automated structure determination pipelines are explained, as well as how to deal with problems such as crystal pathologies that still demand expert analysis. These methods are illustrated through their application to problems of great biological interest, such as the molecular machinery underlying the complement pathway, the mechanism of action of monoamine oxidase inhibitors, and the structure of the eukaryotic ribosome. Complementary approaches, such as neutron diffraction, small angle X-ray scattering, coherent diffraction and computational modelling, are also explored.