

Special Issue Reprint

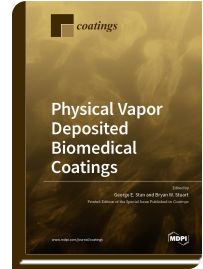
Physical Vapor Deposited Biomedical Coatings

www.mdpi.com/books/reprint/4602

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ISBN 978-3-0365-2414-6 (Hardback)

ISBN 978-3-0365-2415-3 (PDF)

The book outlines a series of developments made in the manufacturing of bio-functional layers via Physical Vapour-Deposited (PVD) technologies for application in various areas of healthcare. The scrutinized PVD methods include Radio-Frequency Magnetron Sputtering (RF-MS), Cathodic Arc Evaporation, Pulsed Electron Deposition and its variants, Pulsed Laser Deposition, and Matrix-Assisted Pulsed Laser Evaporation (MAPLE) due to their great promise, especially in dentistry and orthopaedics. These methods have yet to gain traction for industrialization and large-scale application in biomedicine. A new generation of implant coatings can be made available by the (1) incorporation of organic moieties (e.g., proteins, peptides, enzymes) into thin films using innovative methods such as combinatorial MAPLE, (2) direct coupling of therapeutic agents with bioactive glasses or ceramics within substituted or composite layers via RF-MS, or (3) innovation in high-energy deposition methods, such as arc evaporation or pulsed electron beam methods.

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