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Electrochemical Layer by Layer Assembly

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Abstract : The performance of functional materials is governed by their ability to interact with surrounding environments in a well-defined and controlled manner. Layer-by-Layer (LbL) assembly is one of the most widely used technologies for coating both planar and particulate substrates in a diverse range of fields, including optics, energy, catalysis, separations, and biomedicine. Herein, we introduce electrochemical-coupling layer-by-layer assembly as a novel fabrication methodology for preparing layered thin films. This assembly method not only determines the process properties (such as the time, scalability, and manual intervention) but also directly control the physicochemical properties of the films (such as the thickness, homogeneity, and inter- and intra-layer film organization), with both sets of properties linked to application-specific performance.

Keywords : layer by layer assembly, electropolymerization, carbazole, optical thin film, electronics
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