Functions and Patterning of Layer-by-Layer Thin Films

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Fabrication of multilayer thin films has recently attracted much interest because they are of great use in thin film devices based on electrochemical processes such as sensors, integrated optics, rectifiers, or light-emitting devices (LED). Most of these applications require the preparation of stable and well-organized films with fast fabrication time.
In this presentation, methods to build up organic/organic and organic/inorganic multilayer films composed of organic polyelectrolytes and inorganic nanoparticles will be reviewed. A new layer-by-layer deposition method based on the spinning process is introduced and its interfacial aspects will also be addressed in detail. New approaches to create multilayer thin films with well-defined micropatterns will also be introduced and new insights and outlook on the layer-by-layer deposition will be given.