

Highly Stable Photoluminescent and Magnetic Multilayers Using Nucleophilic Substitution Reaction in Organic Media

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We introduce a novel and efficient strategy for producing free-standing functional films via photo-crosslinking and electrostatic layer-by-layer (LbL) assembly, which can allow the buildup of hydrophilic multilayers onto hydrophobic surfaces. Hydrophobic multilayers were deposited on ionic substrates by a photo-crosslinking LbL process using photo-crosslinkable

polymers. The photo-crosslinked surface was converted to an anionic surface by excess UV light irradiation. This treatment allowed also the stable adhesion between metal electrode or cationic polyelectrolyte and hydrophobic multilayers. After dissolving the ionic substrates in water, the formed free-standing films exhibited unique functionalities of inserted components within hydrophobic and/or hydrophilic multilayers.