

White-light emitting multi-lanthanide terephthalate thin films by atomic/molecular layer deposition

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SUPPORTING INFORMATION

ALD/MLD Process Optimization

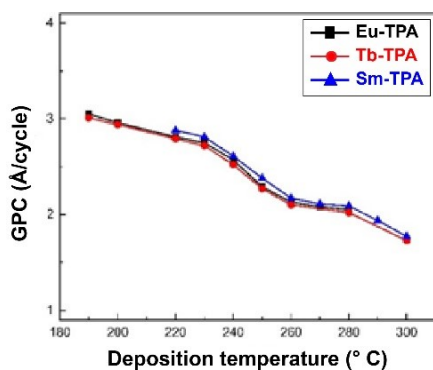


Figure S1: Deposition temperature dependence of GPC for representative Ln(thd)₃ + TPA processes (Ln = Sm, Eu, Tb). Pulse lengths: 4 s for Ln(thd)₃, 7.5 s for TPA.

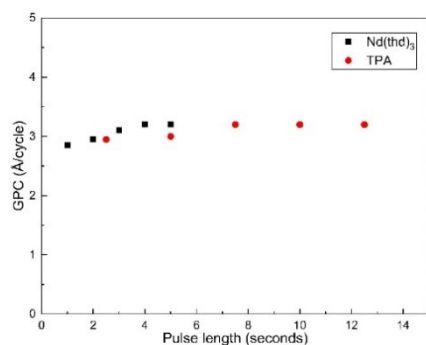


Figure S2: Saturation of the GPC value with increasing precursor pulse lengths for the Nd(thd)₃ + TPA process. Deposition temperature 190 °C.

Table S1: GPC values for representative Ln(thd)₃ + TPA processes at deposition temperature of 190 °C. Pulse lengths: 4 s for Ln(thd)₃, 7.5 s for TPA.

Lanthanide	GPC (Å/cycle)
La	3.15
Nd	3.15
Eu	3.05
Tb	2.93
Er	2.91

Emission and Excitation Spectra

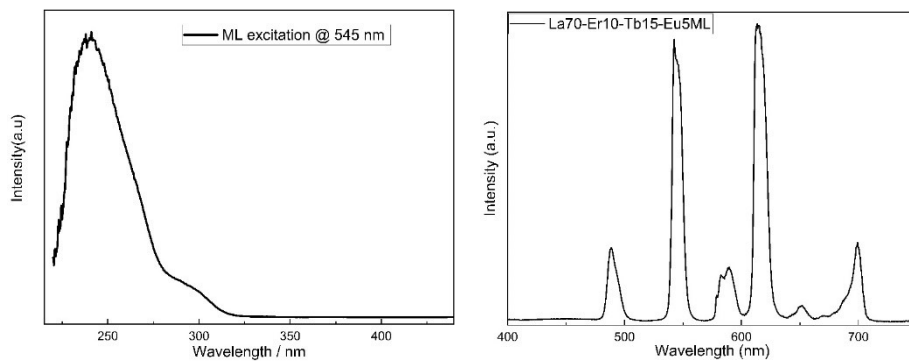


Figure S2: Luminescence characteristics of the multi-layer La70-Er10-Tb15-Eu5-ML thin film: (left) excitation spectrum (recorded for the 545 nm emission of Tb^{3+}), and (right) emission (recorded at 250 nm excitation).

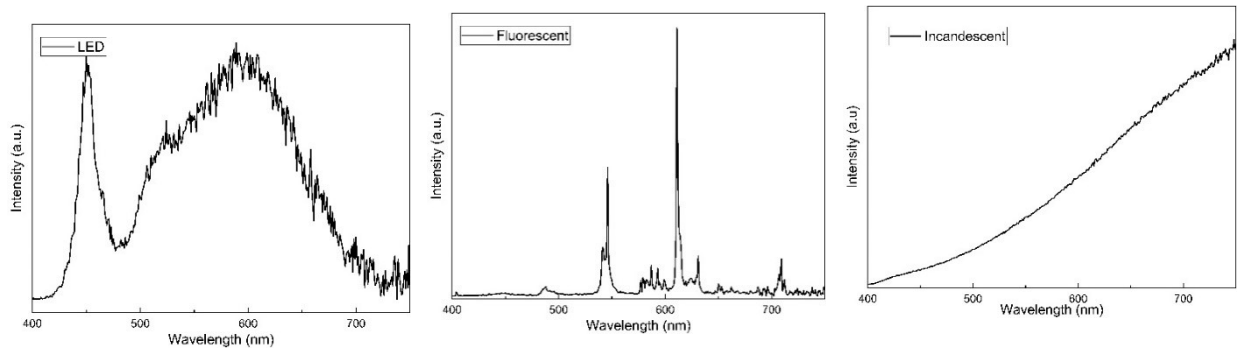


Figure S3: Emission spectra of commercial: (left) LED lamp, (middle) fluorescent tube, and (right) incandescent bulb.