

Electronic Supplementary Information

for

In situ Generation of Fluorescent Silver Nanoclusters in Layer-by-Layer Assembled Films

Wenjing Zhang¹, Jia Song¹, Wang Liao¹, Ying Guan^{1*}, Yongjun Zhang^{1*} and X. X. Zhu^{1,2*}

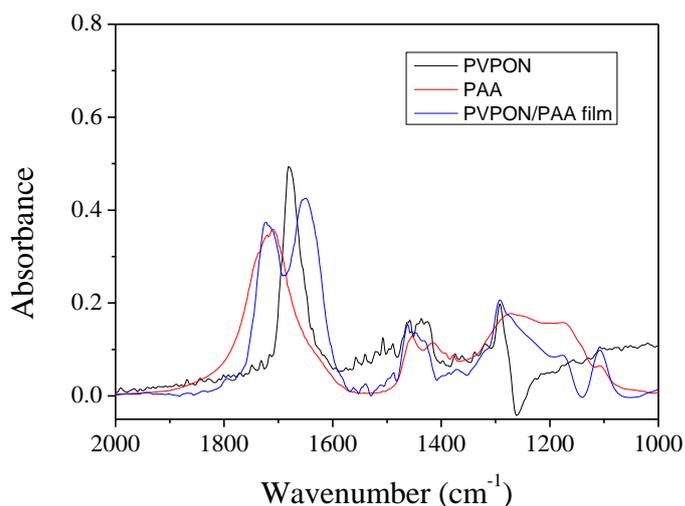


Fig. S1 FTIR spectra of PVPON, PAA, and a PVPON/PAA LBL film. The IR band of the carbonyl groups in PAA shifts from 1710 to 1724 cm⁻¹, while IR band of the carbonyl groups in PVPON shifts from 1680 to 1650 cm⁻¹, indicating the formation of strong intermolecular hydrogen bonds between PVPON and PAA in the LBL films.

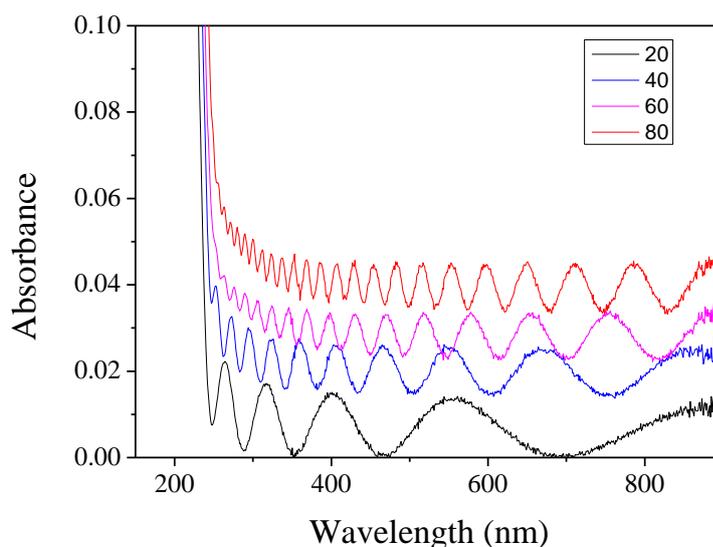


Fig. S2 Absorption spectra of 20, 40, 60, 80 bilayer PVPON/PAA films. The plots are shifted along the vertical axis for clarity. The film thicknesses of the films were determined to be 499.9, 1059, 1726, 2509nm, respectively, from the Fabry-Perot fringes using a refractive index of 1.51.

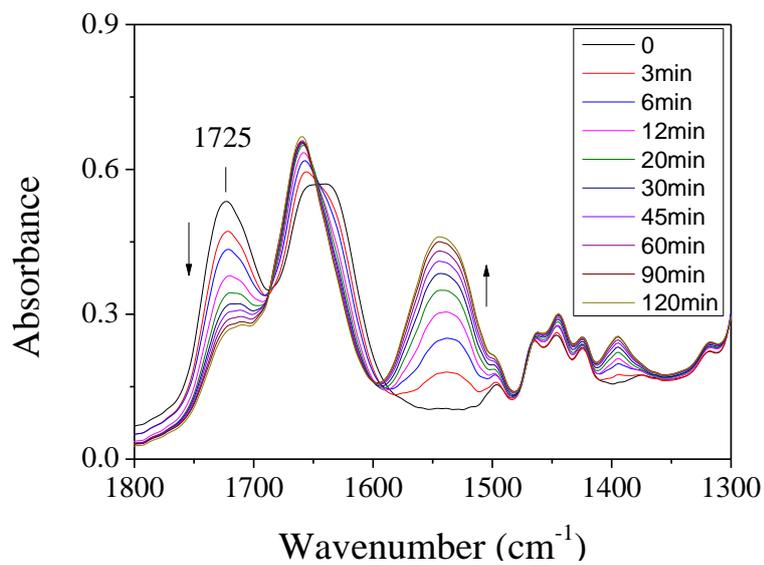


Fig. S3 FTIR spectra of a (PVPON/PAA)25 film before and after being loaded with Ag⁺ ions by immersing in AgNO₃ solution for various time. According to Eq. 1, ($q_e = (A_{1725,0} - A_{1725,e})/A_{1725,0}$), Ag⁺ concentration in the film was calculated to be 49.9 %.

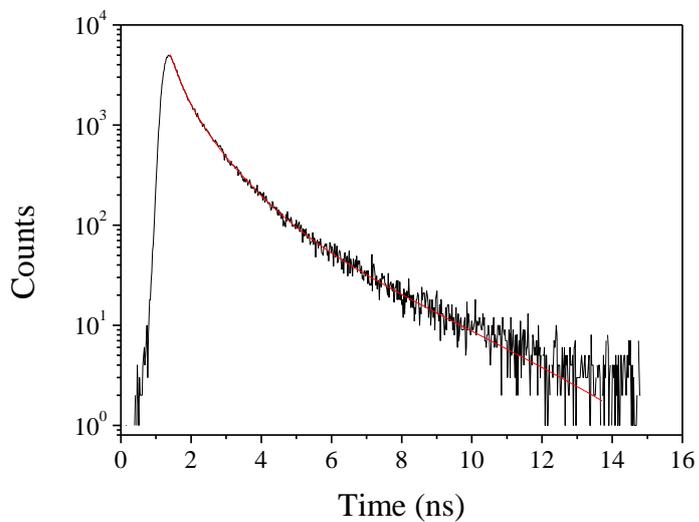


Fig. S4 Lifetime measurements of the fluorescent LbL film.