

Abstract Submitted
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Fluorescence decay dynamics of surface-functionalized nanoparticles JACOB AJIMO, Texas Tech University, LUN MA, MINGZHEN YAO, XING ZHANG, JOHN COMO, LOUISA HOPE-WEEKS, JUYANG HUANG, WEI CHEN, KWAN CHENG, TEXAS TECH TEAM, UT ARLINGTON TEAM — We report the fluorescence decay dynamics of surface-functionalized nanoparticles (NPs), poly(ethylene glycol) bis(carboxymethyl) ether coated LaF₃: Ce,Tb and thio-glycolic acid coated ZnS:Mn, in solution and also in the surface-bound phase. The NPs exhibited high quantum yield and multi-component decays, and of average lifetime of 20-130 microseconds in solution, but 10-60 microseconds in the bound phase depending on the solid substrates. Our results suggest that the coated ZnS:Mn nanoparticles hold great promise as a non-toxic labeling agent for ultra-sensitive, time-gated, trace biomaterials detections in nano-forensic applications.

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