

Electronic Supplementary Information

Molecular phosphorescence enhancement by the plasmon field of metal nanoparticles

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The fluorescence decay curves of **Rh123** and **Rh123-2Br** and their fitting are shown in Figure S1. The residuals curve is almost zero when describing the kinetics of fluorescence decay using a single-exponential law. The fluorescence lifetime of **Rh123** is $\tau_{fl}=3.48\pm 0.05$ ns, and that of **Rh123-2Br** is $\tau_{fl}=2.10\pm 0.05$ ns.

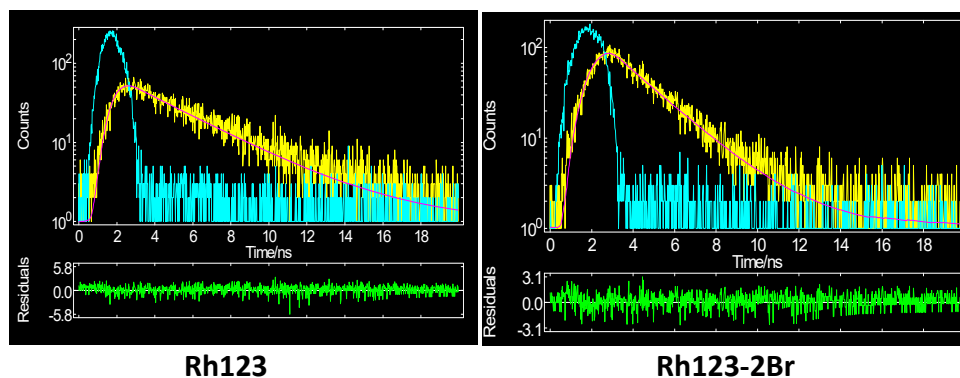


Figure S1. Fluorescence decay kinetics of **Rh123** and **Rh123-2Br**. The yellow curve shows the experimentally measured fluorescence decay, the blue curve is instrumental response function (IRF), the purple curve is calculated curve according to Eq. (1), and the green curve is the difference between the calculated and experimental curves.

The decay kinetics of the DF and phosphorescence were also modelled using Eq. (1). The decay kinetics of the DF and phosphorescence are shown in Figure S2.

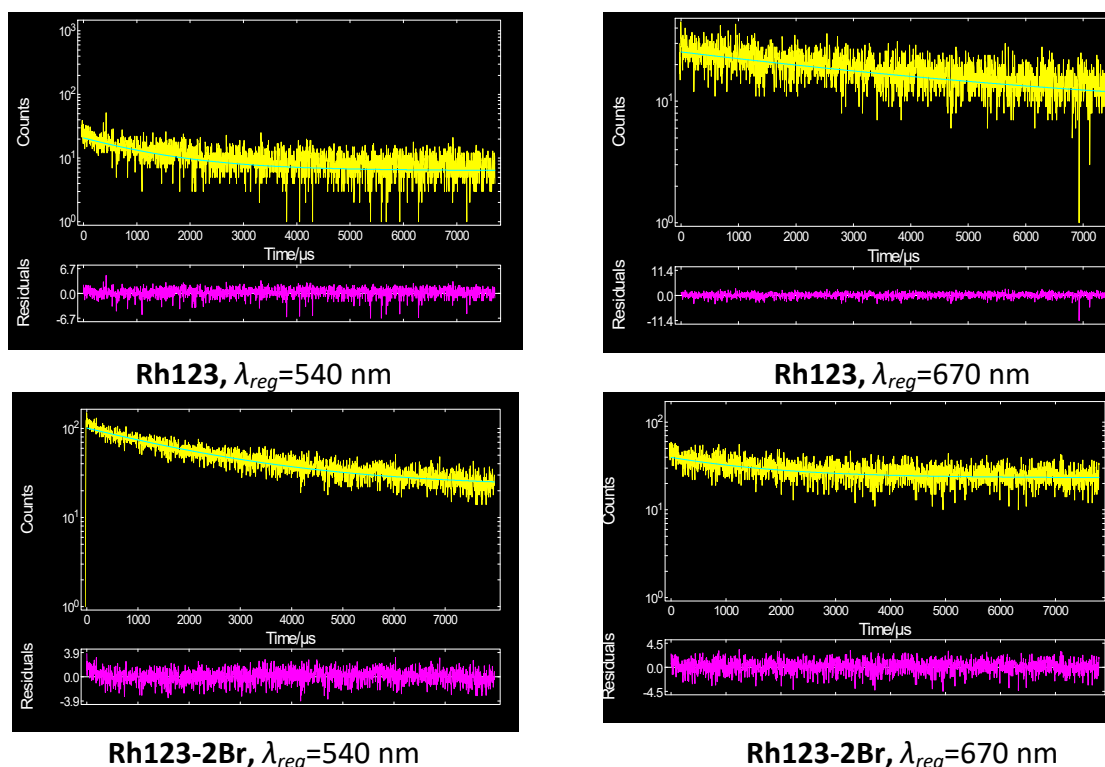


Figure S2. The kinetics of the DF ($\lambda_{reg}=540$ nm) and phosphorescence ($\lambda_{reg}=670$ nm) decay of **Rh123** and **Rh123-2Br**. The yellow curve is the experimentally measured fluorescence decay curves, the blue curve is the fitted curve using Eq. (1), the purple curve is the difference between the calculated and experimental curves. The difference is very small for the DF when using a single exponential function in the fit.