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## **Orienting an ensemble of dipoles near a dielectric interface**

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Fluorescence of single dipole emitters near a dielectric interface are studied. A 15 nm thick layer of polystyrene lightly doped with Rhodamine 6G was spin-cast onto cleaned glass and PMMA coated glass slides. Fluorescence lifetime was found to increase by a factor of three as the PMMA spacer layer thickness was increased. This lifetime increase is accounted for by a change in the ensemble averaged distribution of the dipole orientation from isotropic to perpendicular to the interface as the spacer layer thickness increases. This reorientation occurs proceeds takes place over a 200nm range (from 100 to 300nm) of buffer layer thicknesses. The ability to tune dipole orientation and hence charge injection into 2D materials.

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