

Supporting Information

Giant Photoluminescence Enhancement in MoSe₂ Monolayers treated with Oleic Acid Ligands

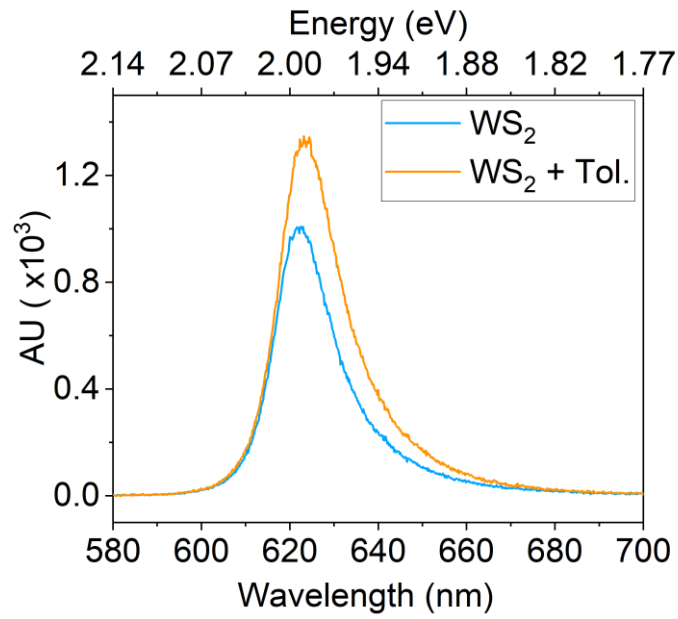
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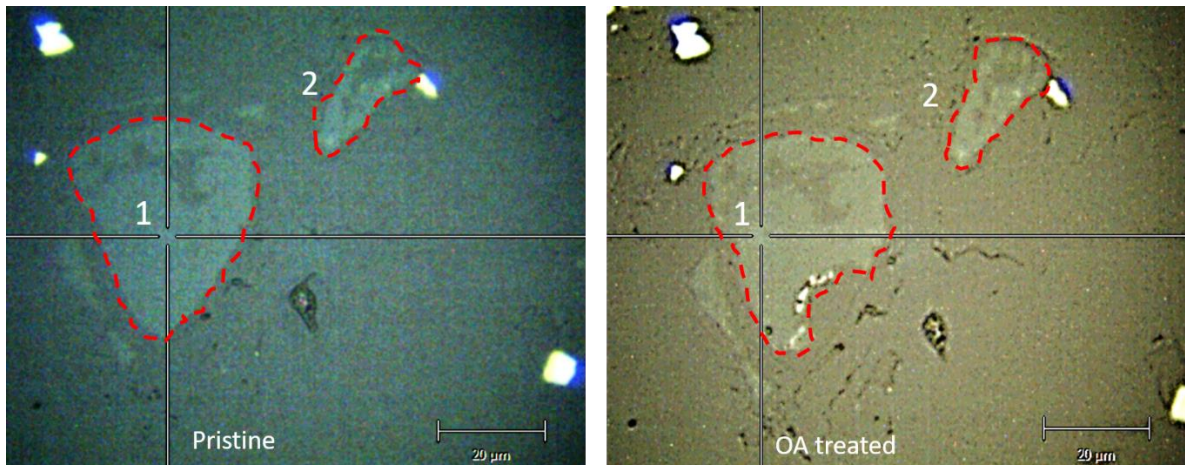
²Cambridge Graphene Centre, University of Cambridge, 9 JJ Thomson Avenue, Cambridge, CB3 0FA, Cambridge,
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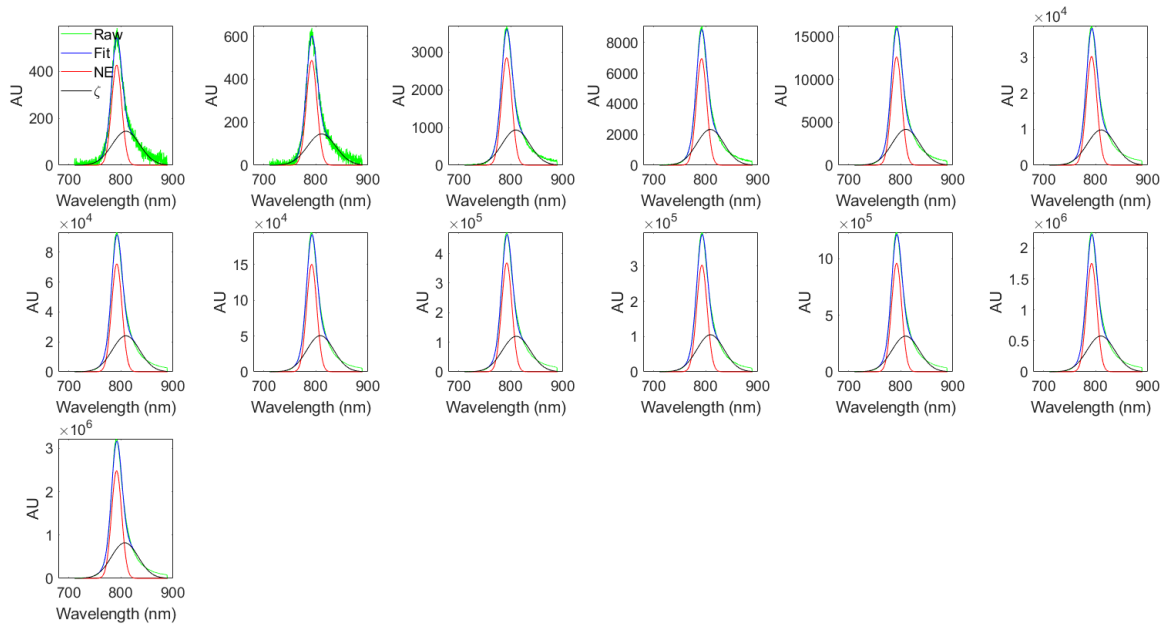
*E-mail: ar525@cam.ac.uk



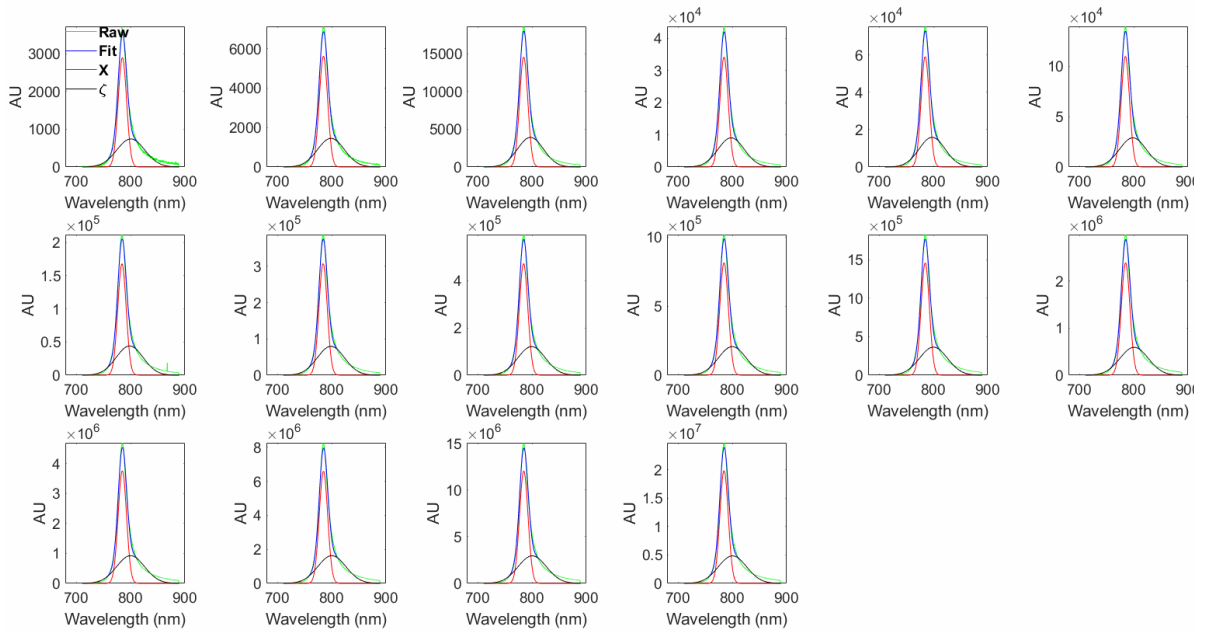
SI Figure 1: Effect of Toluene on WS₂ PL



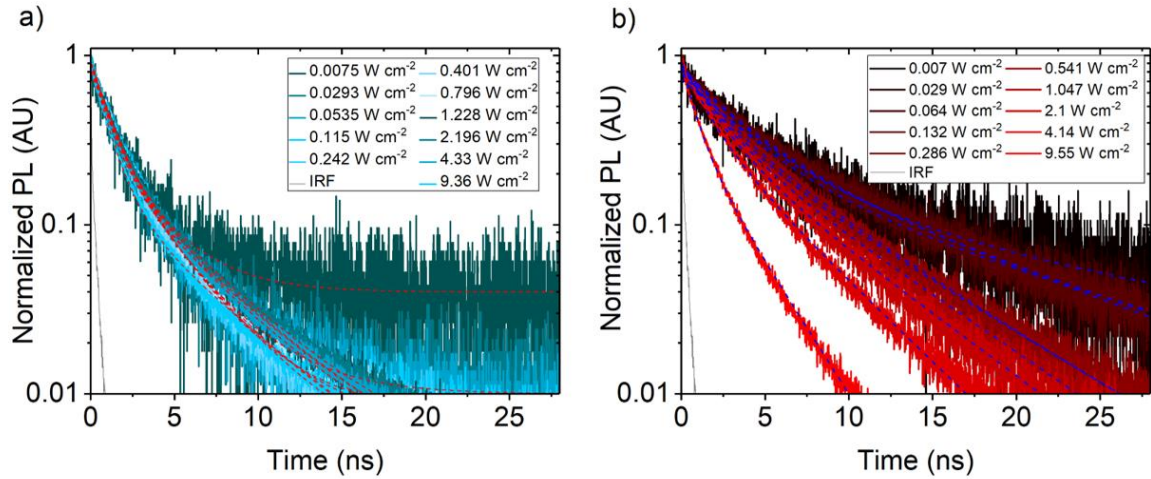
SI Figure 2: Optical micrographs of MoSe₂ monolayers before (LHS) and after (RHS) OA treatment. Scalebar represents 20 μm. Slight delamination in monolayer 1 attributed to surface tension effects of OA.



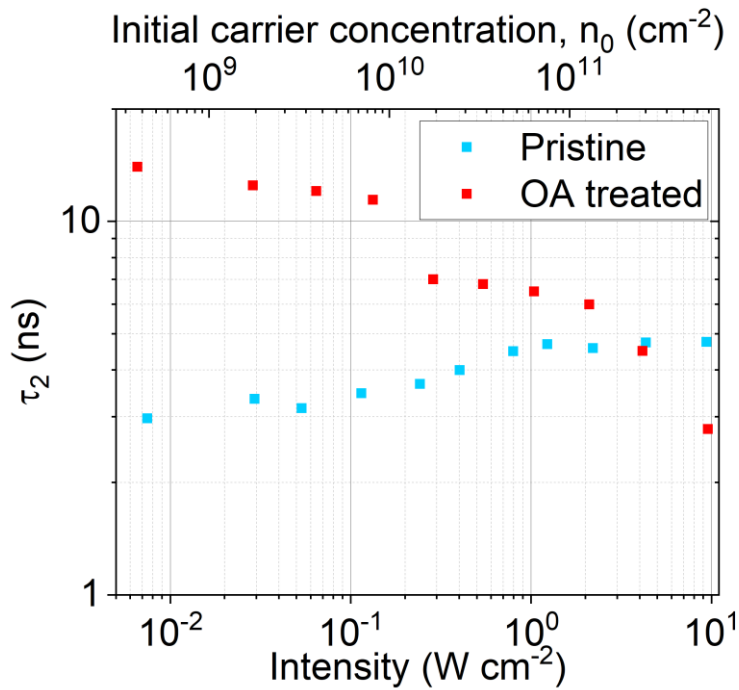
SI Figure 3: Gaussian fits of pristine MoSe₂ monolayer PL spectra



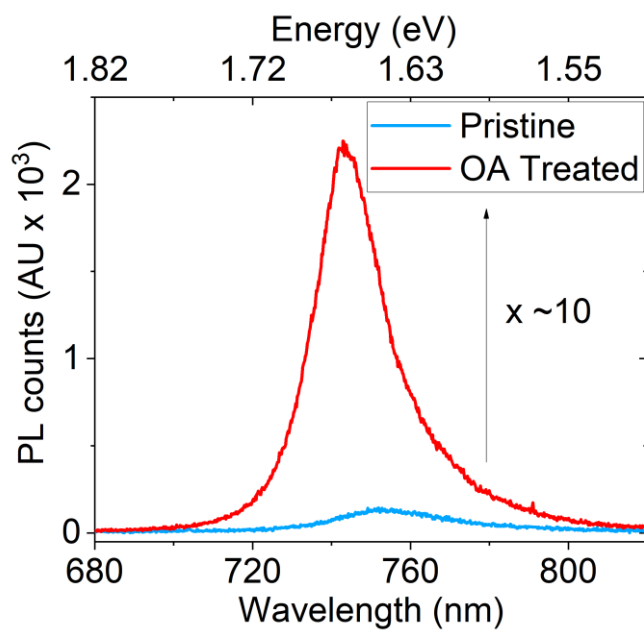
SI Figure 4: Gaussian fits of OA treated MoSe₂ monolayer PL spectra



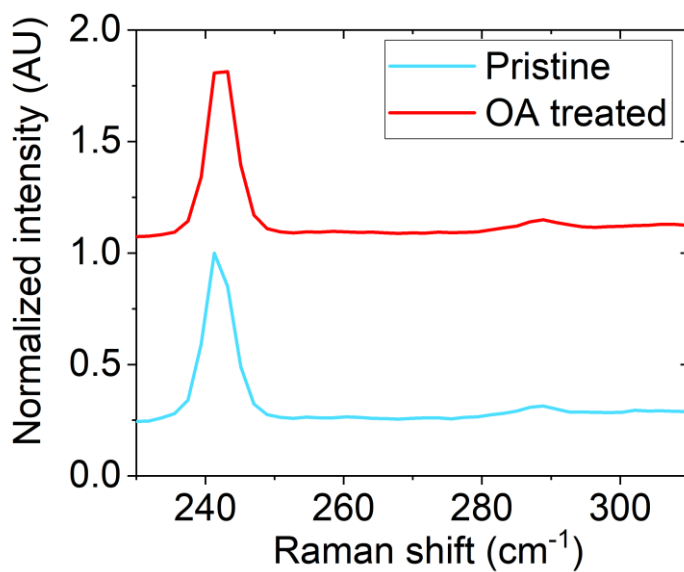
SI Figure 5 a-b: Time resolved photoluminescence signals for pristine (blue) and OA treated (red) samples with bi-exponential decay fits (red dashed line in pristine spectra and blue dashed lined in OA treated spectra).



SI Figure 6: Variation of slow decay component, τ_2 , of pristine (blue) and OA treated (red) MoSe₂ time resolved PL signals with initial carrier concentration and pump intensities (W cm⁻²).



SI Figure 7: Raw PL spectra of a single spot on a WSe₂ monolayer on Si-SiO₂ (90 nm) treated with OA.



SI Figure 8: Raman spectra of pristine (blue) and OA treated MoSe₂ monolayers on glass substrate.