

# Supporting Information

## Wide-field spectral super-resolution mapping of optically active defects in hBN

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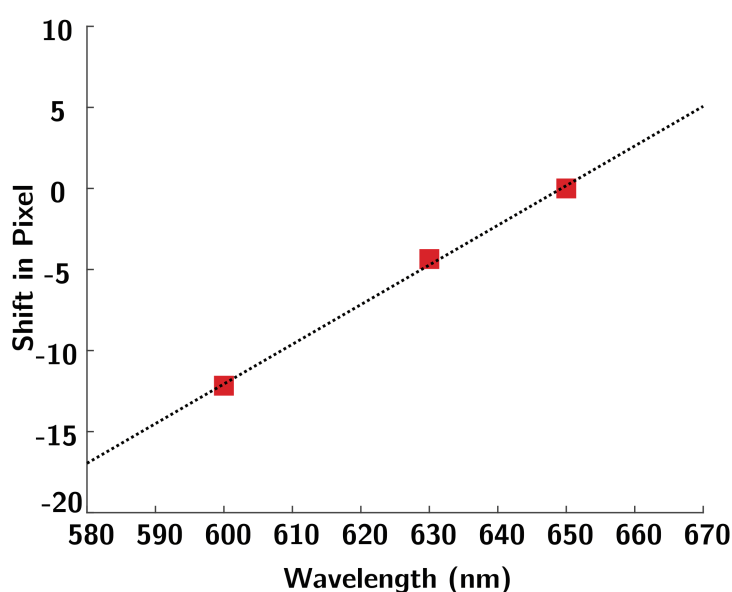
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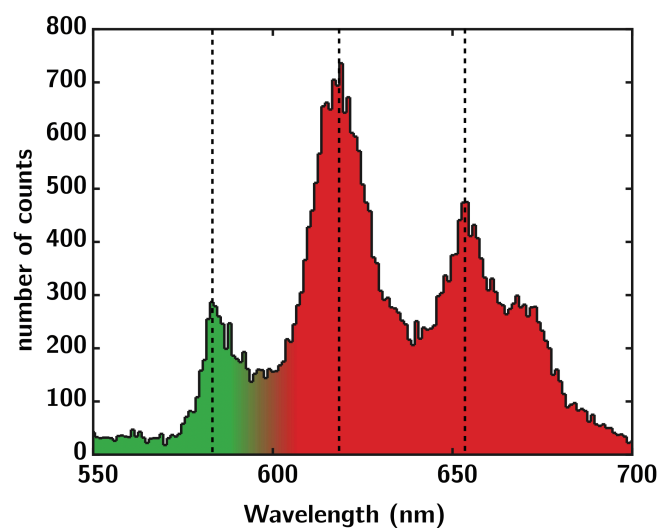
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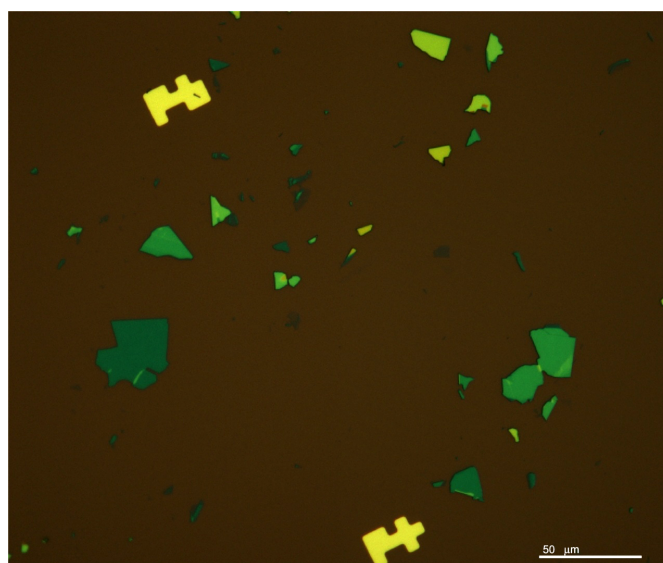


**Figure S1: Calibration of spectral SMLM.**

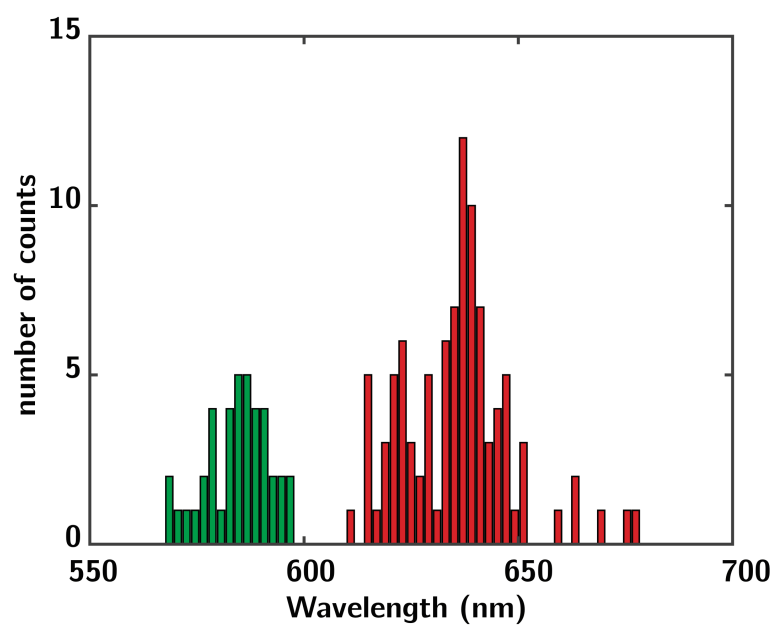
Linear calibration for the vertical shift in the spectral channel as a function of emission wavelength.



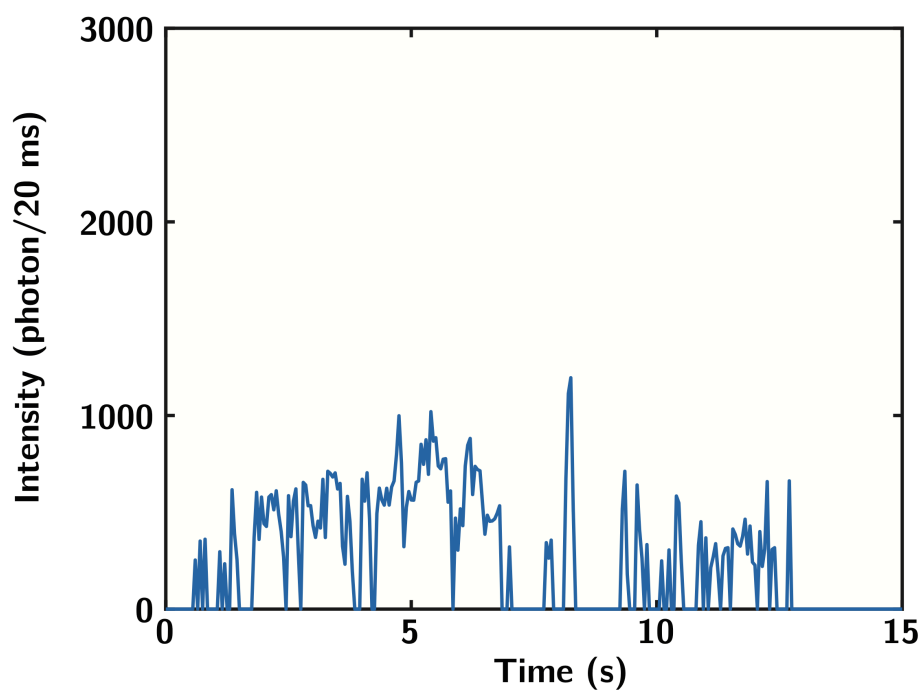
**Figure S2: Distribution of center emission wavelength for a CVD-grown flake, characterized by a trimodal distribution (Fig. 2c, Flake 4).**



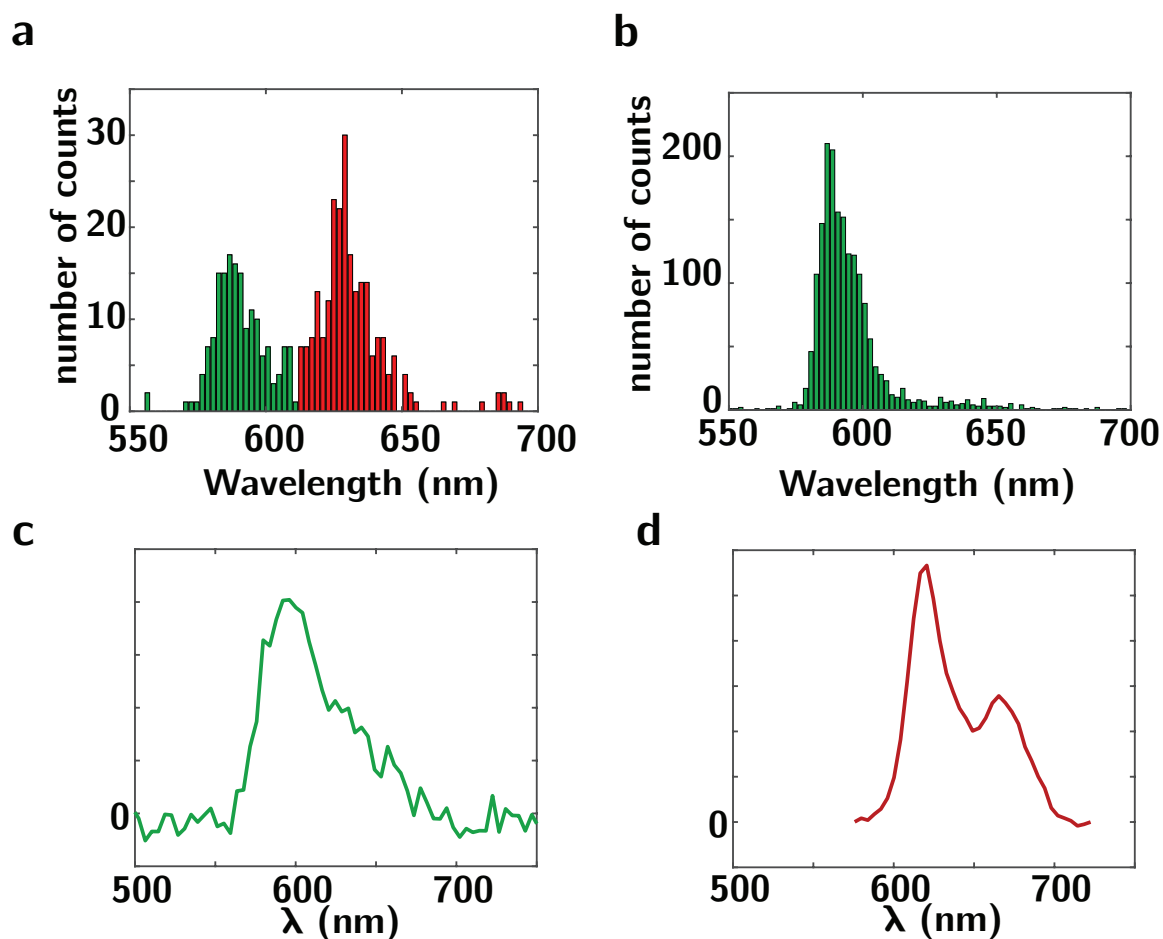
**Figure S3: Wide field image of exfoliated hBN crystals transferred on Si/SiO<sub>2</sub> chip.**



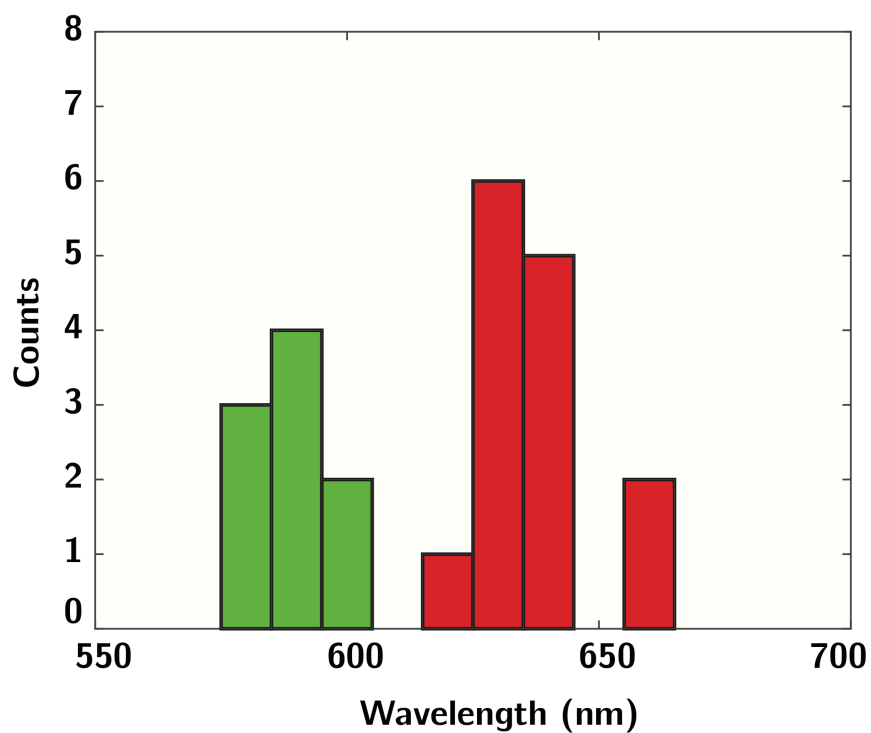
**Figure S4: Distribution of emission wavelength in various just-exfoliated hBN flakes. Bin size is 2 nm.**



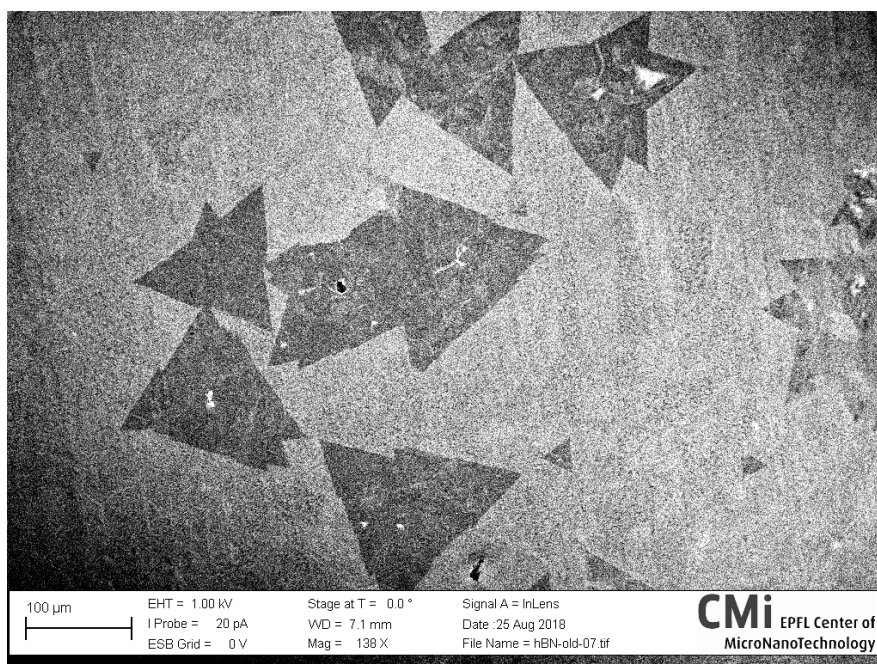
**Figure S5: Representative time trace for an emitter at the surface of an irradiated exfoliated flake.**



**Figure S6: Emitters in plasma-treated exfoliated hBN.** Distribution of emission wavelength in a plasma-treated exfoliated flake **(a)** showing dual emission wavelength distribution (corresponding to sample 2 in Fig. 4) and **(b)** showing single mode in emission wavelength, with few emitters with emission above 610 nm (corresponding to sample 8 in Fig. 4). Bin size is 2 nm. **(c-d)** Representative spectra of emitters for each population of emission wavelength, corresponding to type A **(c)** and type B **(d)** of Fig. 3 of main text.



**Figure S7: Distribution of emission wavelengths for defects attributed as “type A” and “type B” in Fig. 5c-d. Bin size is 10 nm.**



**Figure S8: SEM images of hBN flakes grown on Fe Foil.**