

Abstract Submitted  
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**Nano-optical Imaging of 2D Materials** CHENWEI TANG, ZHE HE, Texas AM University, DMITRI VORONINE, Texas AM University, Baylor University — Monolayer transition metal dichalcogenides (TMDC) are 2D materials with great potential in fabricating optoelectronic devices, biosensors and catalysts. Their heterostructures with nanometer-scale boundaries could be used as new platforms to improve the spatial resolution of optical imaging or as accurate sensors. Here we image molybdenum and tungsten based 2D materials and heterojunctions with a few nanometer spatial resolution using tip-enhanced photoluminescence (PL) and Kelvin probe spectroscopies. From the changes in the PL and surface potential, we determine the bandgap, defects and tip-sample interaction with nanoscale resolution.

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