

ENHANCING NONLINEAR OPTICAL RESPONSE IN ARTIFICIAL STACKED 2D MATERIALS

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Two dimensional (2D) semiconductors and their artificial structures hold great promises for electronic, optoelectronic, and quantum devices. We developed a facile method to disassemble van der Waals (vdW) single crystals layer-by-layer into monolayers with near-unity yield, high quality, and macroscopic dimensions, and reassemble them into artificial stacked structures. With the stacked multilayers, we have enhanced nonlinear optical response in second harmonic generation and high harmonic generation. These findings reveal versatile optical responses of the 2D semiconductor systems that can be engineered on demand for future applications.