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Black Phosphorus Boron Nitride Heterostructures NATHANIEL GILLGREN, YAFIS BARLAS, YANMENG SHI, JIAWEI YANG, University of California Riverside, TAKASHI TANIGUCHI, National Institute for Materials Science, CHUN NING (JEANIE) LAU, University of California Riverside — There has been significant recent interest in black phosphorus as a candidate for future electronics applications, as it possesses both a layered-tunable band gap and a relatively high mobility (compared to other 2D candidates). However, black phosphorus' degradation in ambient conditions constitutes a major road block in future applications. As a potential solution for this problem we explore the effects of encapsulating black phosphorus between hexagonal boron nitride. We will present the effects of this heterostructure on both the stability and transport properties of thin black phosphorus devices.

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