

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Optimization of a growth process for as-grown 2D materials-based devices MILES LINDQUIST, SUDI KSHA KHADKA, SHROUQ ALEITHAN, ARI BLUMER, THUSHAN WICKRAMASINGHE, RUHI THORAT, MARTIN KORDESCH, ERIC STINAFF, Ohio University — We will present the effects of varying key parameters of a deterministic growth method for producing self-contacted 2D transition metal dichalcogenides. Chemical vapor deposition is used to grow a film of 2D material nucleated around and seeded from metallic features prepared by photolithography and sputtering on a Si/SiO₂ substrate prior to growth. We will focus on a particular method of growing variable MoS₂ based device structures. The goal of this work is to arrive at robust platform for growing a variety of device structures by systematically altering parameters such as the amount of reactants used, the heat of the substrate and oxide powder, and the flow rate of argon gas used. These results will help advance a comprehensive process for the scalable production of as-grown, complex, 2D materials-based device architectures.

Miles Lindquist
Ohio University

Date submitted: 11 Nov 2016

Electronic form version 1.4