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Biaxial Strain Engineering in Suspended MoS2 DAVID LLOYD, Boston University, XINGHUI LIU, University of Colorado at Boulder, LAUREN CANTLEY, ERIC KOCH, GUANG YANG, Boston University, NARASIMHA BODDETI, University of Colorado at Boulder, MARTIN L. DUNN, Singapore University of Technology and Design , J. SCOTT BUNCH, Boston University, BUNCH TEAM — Monolayer MoS2 is a direct gap semiconductor and has attracted significant interest for its potential uses in electronics and optoelectronics. It has also been shown to have a highly strain-sensitive bandgap and can sustain strains of up to 11 percent, making it ideally suited for using strain engineering to tune it's electrical and optical properties. Herein, we fabricate pressurized MoS2 blisters using single and few layer MoS2 membranes suspended over cylindrical microcavities. By applying a pressure difference across the membrane and measuring the changes to it's photoluminescence spectrumwe study the effect of elastic biaxial strain engineering on the bandgap of MoS2.

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