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Strain control of the metal-insulator transition in vanadium dioxide nanobeams[1] JAE HYUNG PARK, SERKAN KASIRGA, JAMES COY, XIAODONG XU, DAVID COBDEN, University of Washington, NANODEVICE LAB COLLABORATION — To be able perform systematic studies at the metal-insulator transition in VO2, we have developed a platform for applying axial strain to suspended single-crystal nanobeams while carrying out optical and transport measurements. The nanobeams are positioned on a piezo-actuated silicon structure using a nanomanipulator. The strain can be used to control the transition temperature, because the metallic and insulating phases have different c-axis lattice constants, or to move the interphase boundary between metal and insulator in coexistence. We report transport, Raman and photoconductance measurements as the transition is tuned in this way.

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