

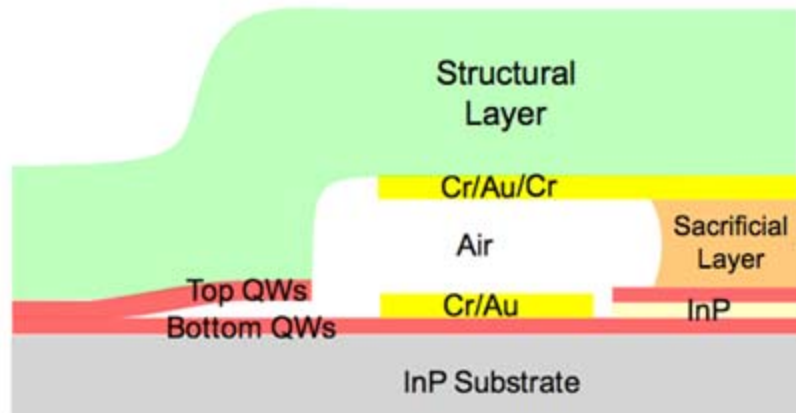
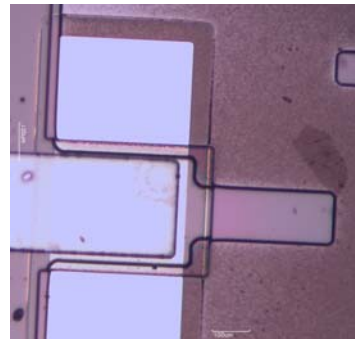
Nanomechanical Tuning of Electron States

Joseph Talghader (PI) and Wing Chan

Department of Electrical Engineering, University of Minnesota

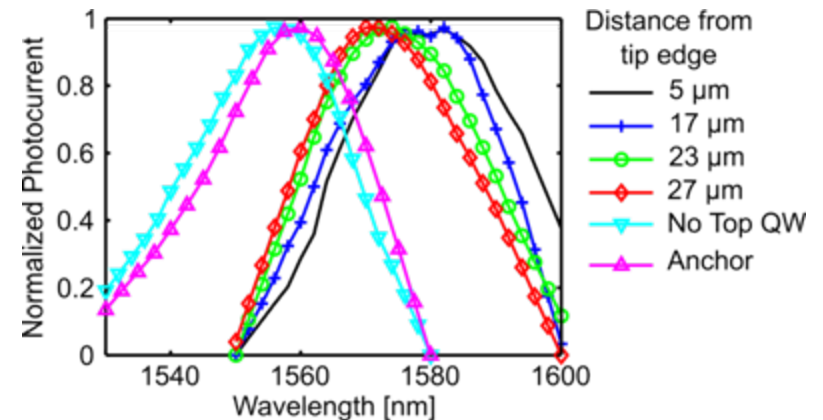
● Introduction

- ◆ Coupling between quantum wells can alter electron states
- ◆ Coupling strength can be changed by physically drawing quantum wells closer together
- ◆ Nanomechanical actuator is being fabricated to tune the distance between two quantum wells and thereby tune the electron states



● Fabrication

- ◆ Photoluminescence wavelength decreased as laser excitation moved from collapsed tip of cantilever towards the anchor
- ◆ 5-mask process is being used to fabricate the actuator



● Publications

- ◆ J.D. Makowski, B.D. Anderson, W.S. Chan, M.J. Saarinen, C.J. Palmstrom, and J.J. Talghader, Coupling Of Quantum States with Mechanical Heterostructures, IEEE Transducers 2009 International Solid-State Sensors, Actuators and Microsystems Conference (June 2009)