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**Electronic properties of near-surface InAs heterostructures** BORZOYEH SHOJAEI, Materials Department, University of California at Santa Barbara, JAVAD SHABANI, California Nanosystems Institute, University of California at Santa Barbara, BRIAN SCHULTZ, Department of Electrical and Computer Engineering, University of California at Santa Barbara, CHRIS PALMSTROM, Department of Electrical and Computer Engineering and Materials Department, University of California at Santa Barbara — The interest in low-dimensional narrow gap semiconductors with large spin orbit and high electron mobility has recently surged because of novel proposals on the realization of Majorana modes in such materials. To induce the proximity effect in the semiconductor by coupling to a superconductor, and to tune parameters of the system to realize Majorana excitations the electron channel has to form at or near the interface with the superconductor. In this work we have systematically studied near surface InAs heterostructures grown by molecular beam epitaxy (MBE). We have measured magnetotransport properties in these structures and compared them to theoretical values. We also discuss the in-situ growth of s-wave superconductors on InAs heterostructures and the proximity effect.

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