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Andreev Reflections at the Superconductor-Semiconductor Interface SOREN FLEXNER, PAUL WELANDER, KEVIN INDERHEES, MICHAEL VISSERS, JAMES N. ECKSTEIN, University of Illinois Urbana-Champaign — We present results of experiments involving coupling of a BCS superconductor (niobium) with a heavily doped gallium arsenide based semiconductor system. Silicon doped GaAs is grown by molecular beam epitaxy and capped by InGaAs, with an indium fraction of 30 percent. Silicon delta doping layers increase electron densities into the semi-metallic regime. Intimate contact between superconductor and semiconductor is obtained by *in situ* evaporation of niobium. Evidence of strong Andreev reflections at this interface is observed and analysis of this behavior in accordance with the BTK formalism will be presented.

Soren Flexner
University of Illinois Urbana-Champaign

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