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**Development of Tunneling Spectroscopy Apparatus for Kelvin and Sub-Kelvin Measurements of Superconducting Energy Gaps by Multi-disciplinary students at a Liberal Arts University**<sup>1</sup> MATT ECKHARDT, Indiana Wesleyan University — Tunneling spectroscopy is an important technique used to measure the superconducting energy gap, a feature that is at the heart of the nature of superconductivity in various materials. In this presentation, we report the progress and results in developing high-resolution tunneling spectroscopy experimental platforms in a helium three cryostat, a 3 Kelvin cryocooler and a helium dip-tester. The experimental team working in a liberal arts university is a multi-disciplinary group consisting of one physics major, chemistry majors and a biology major. Students including non-physics majors learned and implemented current-voltage measurement techniques, vacuum system engineering, built electronic boxes and amplifier circuits from scratch, built custom multi-conductor cables for thermometry and current-voltage measurements, and performed conductance measurements. We report preliminary results.

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