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Multiple Andreev Reflections in MgB_2/I/Pb Heterojunctions Cooled below 1 Kelvin[1] ROBERTO RAMOS, Indiana Wesleyan Univ, STEVEN CARABELLO, Drexel University, Penn State Harrisburg, JOSEPH LAMBERT, Drexel University, WENQING DAI, QI LI, Penn State University, KE CHEN, DANIEL CUNNANE, Temple University, C.G. ZHUANG, None, X.X. XI, Temple University — We have measured the I-V and dI/dV-V characteristics of two MgB_2/I/Pb heterojunctions below 1 Kelvin. In both junctions which were grown on c-axis substrates, we observed the characteristic pi peak corresponding to c-axis tunneling, consistent with theoretical predictions. Furthermore, we have observed sub-harmonic peaks in dI/dV that are consistent with Multiple Andreev Reflections (MAR) usually associated with high-transparency junctions. We also describe the temperature dependence of other sub-gap peaks observed. By systematically reducing noise in our setup and using sub-Kelvin temperatures, we were able to observe relatively sharp MAR peaks which are unusual for junctions with a large R_{subgap}/R_n ratio.

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