Sulfur isotope shift of the gap of PbS H. J. LIAN, A. YANG, M. L. W. THEWALT, Dept. of Physics, Simon Fraser University, Burnaby, BC, Canada, R. LAUK, M. CARDONA, Max Planck Institut fur Festkorperforschung, Stuttgart, Germany — PbS is one of the oldest known semiconductors, occurring naturally as the mineral galena. One of its interesting properties is a strong increase of the band gap energy with increasing temperature, opposite in sign to almost all other semiconductors. We report on the isotope shift of the band gap energy between natural PbS (containing mostly $^{32}$S) and PbS made with enriched $^{34}$S, measured using low temperature photoluminescence spectroscopy. The observed isotope shift is also opposite to the ‘normal’ expectation of larger band gap for the heavier mass. In addition, we report on improved measurements of the temperature dependence of the band gap energy measured using absorption spectroscopy.