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d^2I/dV^2-STS measurements of isotope effect on the electron-lattice interaction(ELI) energy and the gap energy in Bi-2212. JINHO LEE, Cornell University, K. FUJITA, University of Tokyo, Japan, M. WANG, Cornell University, K. MCELROY, University of Colorado, J. SLEZAK, Cornell University, J. -X. ZHU, A. V. BALATSKY, Los Alamos National Lab., H. EISAKI, AIST, Japan, S. UCHIDA, University of Tokyo, Japan, J. C. DAVIS, Cornell University — We measured gap energy and the electron-lattice interaction(ELI) energy on the O^{16} and O^{18} substituted Bi-2212 single crystals using d^2I/dV^2-STS(Scanning Tunnelling Spectroscopy). Bi-2212 crystals were from the same batch, and nearly optimally doped after O^{16} and O^{18} annealing under the same conditions. T_c's were around 88K in both crystals. While the ELI energy was shifted to $\sim 4mV$ lower energy in O^{18} substituted Bi-2212, we found the gap energy of $\sim 38mV$ in both crystals virtually didn't change. We also extracted gap energies from the quasi-particle(QP) dispersions using QP interferences, and will determine weather this gap energy is altered by isotope substitution. The possible identity of the lattice mode will be addressed in the context of recent results from IR spectroscopy and ARPES.

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