Bosonic spectral density of optimally and overdoped LSCO superconductors from optical spectroscopy GREG EGAN, JUNGSEEK HWANG\textsuperscript{1}, SARAH PURDY, JULES CARBOTTE, THOMAS TIMUSK, McMaster University, EWALD SCHACHINGER, Graz University of Technology — Optical spectroscopy on single crystals of optimally doped La\textsubscript{2-x}Sr\textsubscript{x}CuO\textsubscript{4} (x=0.17) show two bosonic peaks at 50 meV and 18 meV at low temperatures (30K) as reported by Hwang et al\cite{1}. The bosonic spectrum is acquired through the Eliashberg formalism by inverting the measured optical spectra, and shows a remarkable similarity to the spin excitation spectrum achieved through inelastic neutron scattering results. The optical study is extended into the overdoped region (x=0.22) for which detailed neutron scattering results suggest a suppression of the strong 50 meV response and a characteristic shift from 18 meV to 10 meV of the low energy response. \cite{1} J. Hwang, E. Schachinger, J.P. Carbotte, F. Gao, D.B. Tanner, T. Timusk, Phys. Rev. Letters 100, 137005 (2008)

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