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Bulk-Sensitive X-Ray Absorption Spectroscopy Free of Self-Absorption ANDREW ACHKAR, Department of Physics, University of Waterloo, Waterloo, N2L 3G1, Canada, TOM REGIER, Canadian Light Source, University of Saskatchewan, Saskatoon, Saskatchewan S7N 0X4, Canada, HIROKI WADATI, GEORGE SAWATZKY, Department of Physics and Astronomy, University of British Columbia, Vancouver, British Columbia V6T 1Z1, Canada, YOUNG-JUNE KIM, Department of Physics, University of Toronto, 60 St. George Street, Toronto, Ontario M5S 1A7, Canada, DAVID HAWTHORN, Department of Physics, University of Waterloo, Waterloo, N2L 3G1, Canada — We demonstrate a new method to measure x-ray absorption spectroscopy (XAS) in addition to traditional transmission, total-electron yield (TEY) and total-fluorescence yield (TFY) that is bulk sensitive, like TFY, and is not affected by self-absorption corrections that plague TFY measurements. This measure of XAS is accomplished by measuring the x-ray emission (partial fluorescence yield, PFY) from a different element or excitation than the one probed by the incident photon energy. It is found that the reciprocal of such a PFY spectrum is proportional to the linear attenuation coefficient, offset by an energy independent constant. We demonstrate this technique on Cu L, La M and Nd M edges of the high-T_C cuprate $La_{2-x-y}Nd_ySr_xCuO_4$ by comparing its TEY, TFY and PFY spectra.

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