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A Laser Based ARPES Study of the Nodal Region of the Cuprates[1] J.D. RAMEAU, CMPMSD, Brookhaven National Laboratory / Stonybrook University, H.-B. YANG, G.D. GU, P.D. JOHNSON, CMPMSD, Brookhaven National Laboratory — A new laser based facility has been constructed at the NSLS for studies of strongly correlated electron systems. While recent studies of the nodal and near-nodal spectrum of the cuprates with low energy lasers appear to show good agreement with higher energy, synchrotron based ARPES, several adverse effects of performing ARPES with lasers remain to be explored. Using the new facility we show that the combination of high emission angles and low electron kinetic energies has many implications for the accurate measurement of any linewidth or band dispersion. We show that this is particularly so for the nodal and near-nodal single particle spectrum of the cuprates. The results and implications of our studies for future laser based ARPES are analyzed and discussed.

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