experimental energy and angular resolution. The finite resolution of an ARPES experiment manifests itself in the fact that the spectra acquired, e.g. Figure 1a-c, are an intensity map $I(\vec{k},\omega) \propto R(\vec{k},\omega|\vec{k}',\omega') \otimes A(\vec{k}',\omega')f(\omega')$ where A is the underlying spectral function describing the distribution of electronic states in momentum and energy in a sample, $f(\omega')$ is the Fermi-Dirac distribution for a given temperature and R is a kernel describing the resolution broadening in momentum and energy that obscures the spectral function. This convolution is responsible for generating the broadening observed in a real ARPES spectrum, I. Here the proportionality denotes transition matrix element effects unimportant to the analysis. R is taken to be a two dimensional Gaussian distribution with full widths at half maximum parametrizing the energy and momentum resolution, respectively.

While a full description of the how the LRM as applied to ARPES will be presented elsewhere[11], it suffices here to recall that it is an iterative, essentially statistical "fitting" procedure that requires as it's only input the experimentally acquired spectrum I and the resolution kernel R which is itself routinely acquired in the course of an experiment. Thus, unlike the Maximum Entropy Method (MEM) of spectral deconvolution no *a priori* assumptions as to the nature of the underlying spectral function are required to extract the spectral function. This is highly beneficial when studying phenomena with ARPES for which no underlying theory is agreed to exist. When applied to ARPES spectra the LRM produces a deconvolved image A that is, statistically speaking, *the most likely* physical spectral function to exist in nature that results in the measured image I when convolved with the inevitable instrumental broadening R.

It is well known that the ill effects of finite resolution on ARPES spectra are most predominant at and around the Fermi level[12]. Indeed, the LRM proves most valuable when called upon to correct the measured peak widths of EDC's and MDC's close to the Fermi level. This correction has the added bonus of correcting the measured Fermi velocity v_F around the Fermi level, which tends to be radically increased in an unphysical way by resolution broadening. Unfortunately, the widths and dispersions of very low energy electrons, precisely where this problem is most acute, are also often of the most fundamental importance when comparing ARPES experiments to theory.

As an example of how the problem of finite resolution can be partially mitigated by the LRM in an ARPES experiment we plot in Figure 3 raw and deconvolved EDC's and MDC's taken at $\vec{k}_F$ and E_F, respectively, from Figures 1a and 1d. The sharpening of both the EDC's