**Montage**

This dialog constructs a montage by shifting the image (or diffraction pattern) around on the camera using the projector-lens alignment (PLA) deflectors. Before acquiring, be sure to perform a coarse alignment under Alignment:Coarse, with the magnification or camera length set as close as possible to what will be used for acquisition. Also, the alignment specimen must be something with good contrast: a random collection of nanoparticles, for example. (One trick that can be used if no other good chose is available is to use a selected-area diffraction aperture with uniform illumination.) The alignment file can be saved and reloaded, if necessary. The fine alignment procedure (Alignment:Fine) is almost identical to Fine Acquire, except it updates the coarse alignment for any (hopefully small) adjustments, whereas Fine Acquire does not change the current alignment. But both fine alignment and fine acquisition require a specimen with good contrast, so they may not always be the best choice.

Hold SHIFT while pressing either of the acquire buttons on the dialog to view the options, particularly the size of the montage, which is expressed in numbers of frames in the x- and y-directions. (Recall that the Orius has a 3:2 aspect ratio.) The overlap is expressed as a fraction of the frame size in either direction. The overlap for a coarse acquisition can be quite small, but it shouldn’t be too small for a fine alignment or fine acquire, because a good cross-correlation of the overlapped regions is needed to alignment neighboring images.