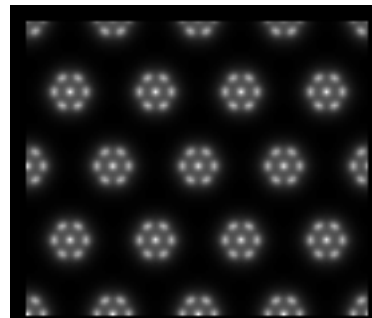


MacTempas

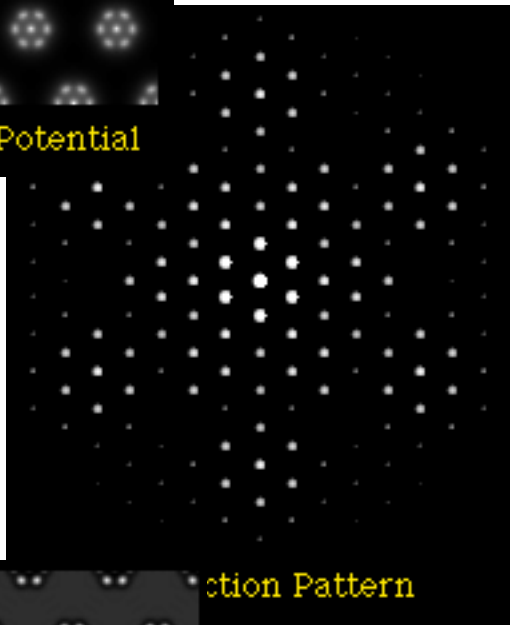
High Resolution TEM Image Simulation Software for the Apple Macintosh and PowerMac family of Computers

MacTempas is a High Resolution TEM Image simulation software package for the Apple Macintosh 68K and PowerPC family of computers. Since its inception in 1988, the program has continually undergoing upgrades and improvements and is in use in over 100 laboratories and universities throughout the world. MacTempas was designed to be a full Macintosh application; it is not a keyboard oriented application just ported to the Macintosh. Menus are used to control the calculation of images, diffraction patterns, display of calculated results, contrast transfer functions etc. The input of atomic structures is facilitated through a data-bank of the 230 spacegroups and the atomistic model can be displayed in several ways in any orientation. The user is free to define any microscope by name and associate default parameters, such as

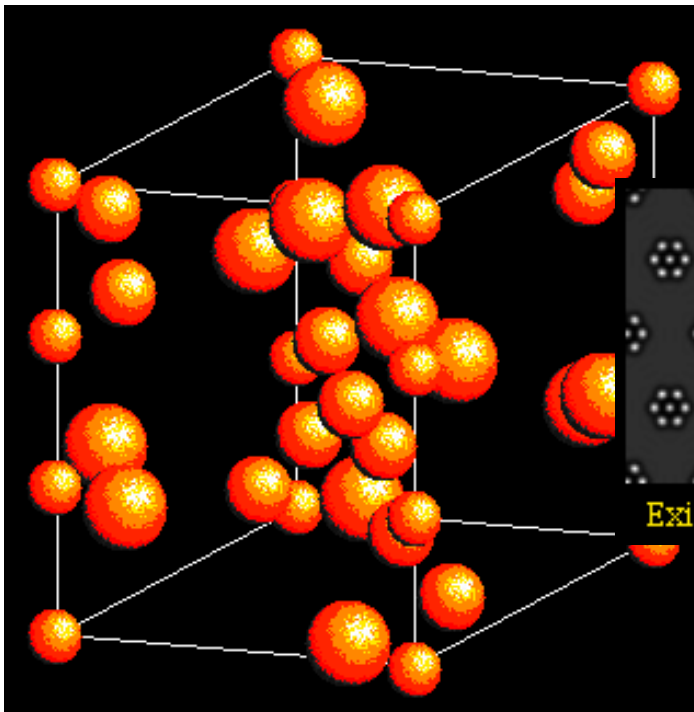
spherical aberration coefficient, voltage etc., with the given microscope. Images can be ported from/to other applications through such facilities as the clipboard and Pict/Tiff/Binary files. The standard Macintosh facilities, Cut, Paste and Copy work are all supported by MacTempas.



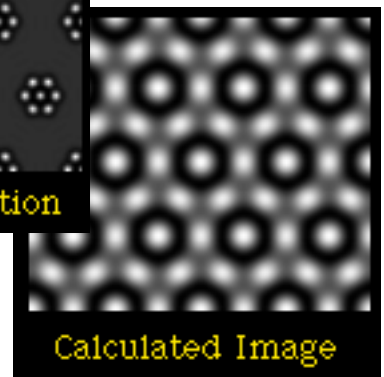
Projected Potential



Diffraction Pattern



Exit Wavefunction



Calculated Image

Short Highlight of MacTempas Features

Full multislice calculation of High Resolution TEM Images and Dynamical Diffraction Patterns. Automatic calculation of the correct unit cell for any given beam orientation. Automatic selection of correct array size and shape for the multislice calculation up to a maximum of 1024*1024points. Subdivision of crystal structures for use as layered structures. Maximum number of atoms only determined by computer memory. Display of atomistic models from any direction in both color and shades of grey. Display of projected potentials and Fourier Coefficients. Display of diffractogram of images. Plotting of amplitudes and phases vs. thickness of selected diffracted beams. Plotting of Electron Microscope Contrast Transfer Functions. Maintains data on the 230 spacegroups and automatically calculates the associated symmetry operators. The atomic coordinates will be calculated using the correct symmetry operators and the specified atomic coordinates of the basis atoms in the structure. Supports stacking of multiple phasegratings with visual feedback of stacking sequence. Supports predefined microscopes associated with a name and stores default values for Cs, spread of focus, electron beam divergence and accelerating voltage. Supports the Macintosh Cut, Paste, Clear, etc. facilities for maintaining images.

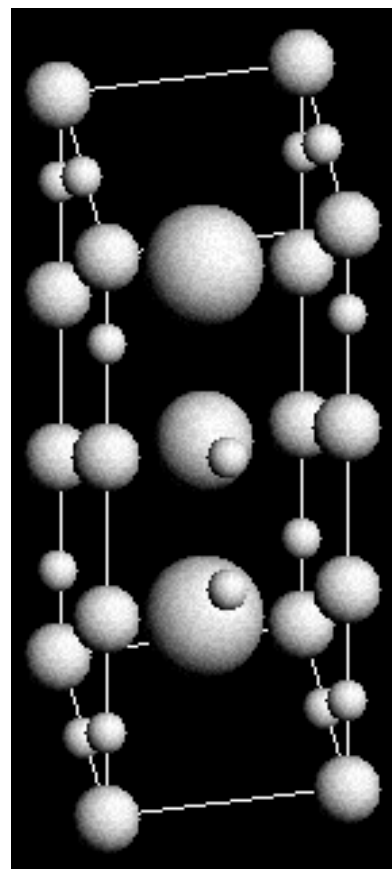
Allows plotting of histograms and linetraces of intensities.

Supports printing on Postscript Printers and Color

Quickdraw/
Postscript Printers.

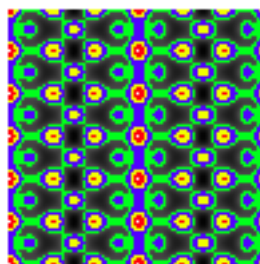
Allows pseudo coloring of images and modification of brightness and contrast levels of images.

Supports the Macintosh Clipboard and Scrapbook such that images can be exported to other applications and images created in other applications can be imported to MacTempas.



Saves images in PICT/
TIFF/BINARY formats for
porting to other applications.

Plus many more features...



Pseudo Colored Image

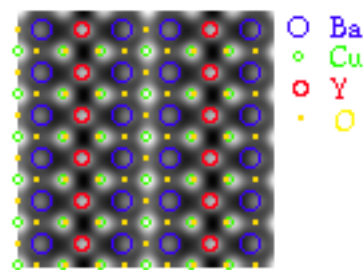
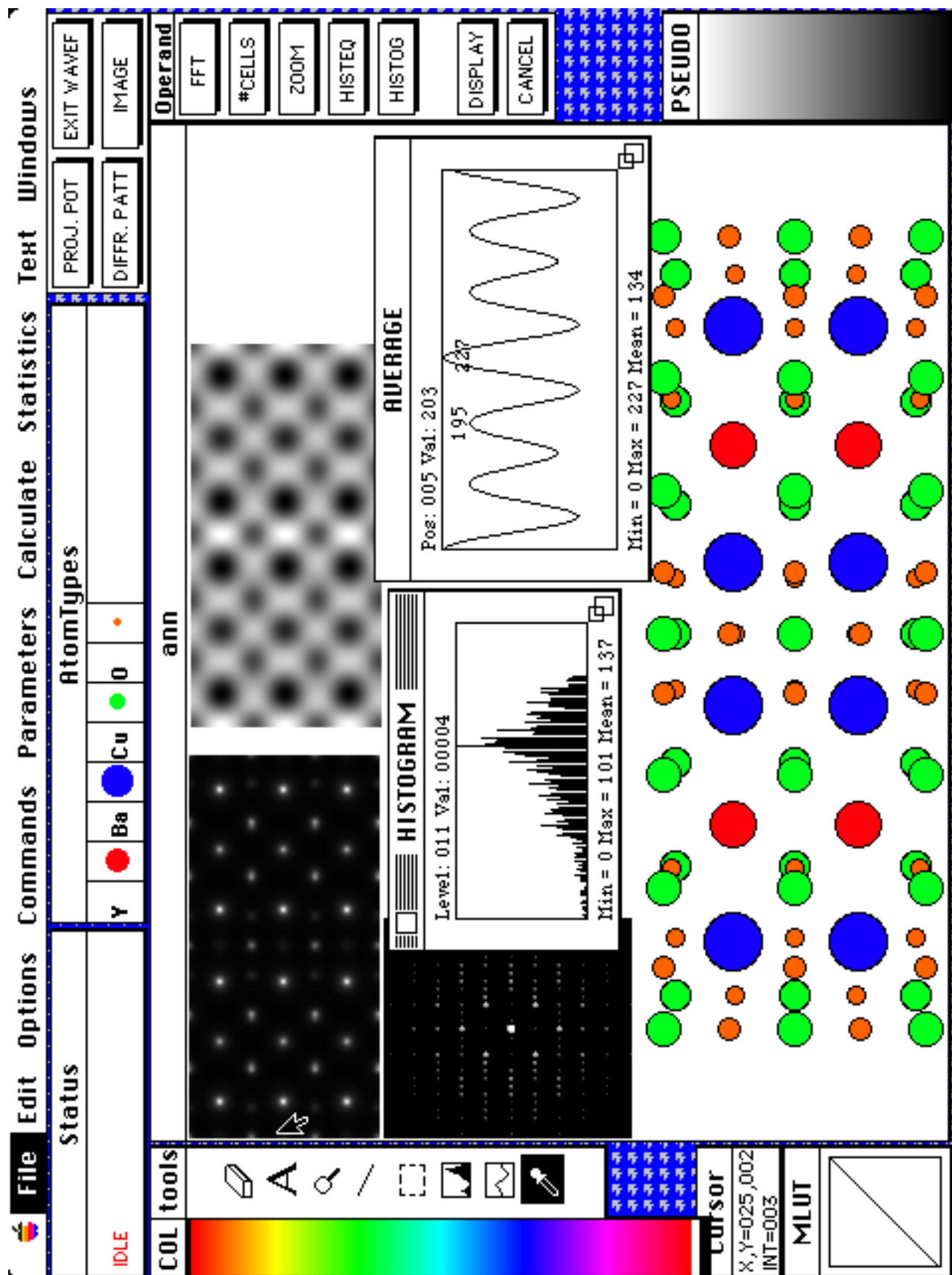


Image with superimposed
atom positions



MacTempas Screen showing the different windows, tools and some of the possible outputs from the program