



# WAVE

Wave optical simulation



The WAVE software is used for calculating the current density distributions in electron beams. WAVE computes the current density in a probe, taking into account the effects of diffraction, spherical aberration, axial chromatic aberration and de-magnified source size. WAVE is a stand alone package that requires the SOFEM Field and 3D Field packages.

The WAVE software consists of a suite of 5 programs as follows:

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| Program <b>WAVE1</b>  | for computing the beam current density distribution with the combined effects of diffraction and spherical aberration. (This current density distribution is called the monochromatic point spread function.)   |
| Program <b>WAVE2</b>  | for computing the beam current density distribution with the combined effects of diffraction, spherical aberration and chromatic aberration. (This is called the polychromatic point spread function.)  |
| Program <b>WAVE3</b>  | for computing the beam current density distribution with the combined effects of diffraction, spherical aberration, chromatic aberration and demagnified Gaussian image of the source. (This is called the overall current density distribution with an extended source.) |
| Program <b>WAVEP1</b> | for plotting the beam current density distribution from the results computed by Programs <b>WAVE1</b> , <b>WAVE2</b> and <b>WAVE3</b> .   |
| Program <b>WAVEP2</b> | for plotting the normalised beam current density distribution from the results computed by Programs <b>WAVE1</b> , <b>WAVE2</b> and <b>WAVE3</b> .  |