Coherent diffraction imaging with intense and ultrashort X-ray Free-Electron-Laser pulses provides high-resolution images of transient/fragile states of matter which are inaccessible with conventional microscopy. I will present several studies which address major limitations of this exciting technique. A special emphasis will be put on exploitation of recent breakthrough developments in accelerator science such as generation of intense attosecond-short X-ray pulses and multi-color pulse trains.