

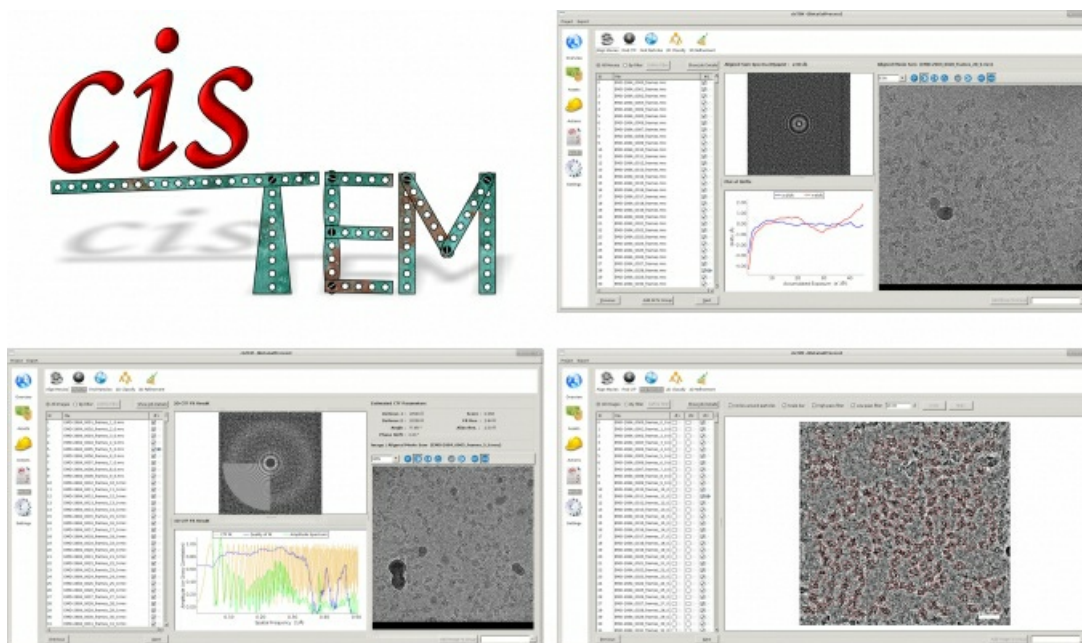
cisTEM: User-friendly software for single-particle image processing

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We have developed new software called cisTEM (computational imaging system for TEM) for the processing of data for high-resolution electron cryo-microscopy and single-particle averaging. cisTEM features an easy-to-use graphical user interface that is used to set up jobs, monitor the progress of processing steps, and display results. It performs all necessary steps to calculate 3D single particle reconstructions, including movie processing, image defocus determination, automatic particle picking, 2D classification, ab-initio 3D map generation from random parameters, and 3D classification and high-resolution refinement. The programs do not support GPU hardware. They are optimized to enable processing of typical datasets (200k – 300k particles) on a 40-CPU workstation in less than a day, comparable to, or exceeding the speed of software optimized for GPUs. Jobs can also be scheduled on large computer clusters using flexible run profiles that can be adapted for any computing environment. The new software is available for download from our laboratory webpage and cistem.org.



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