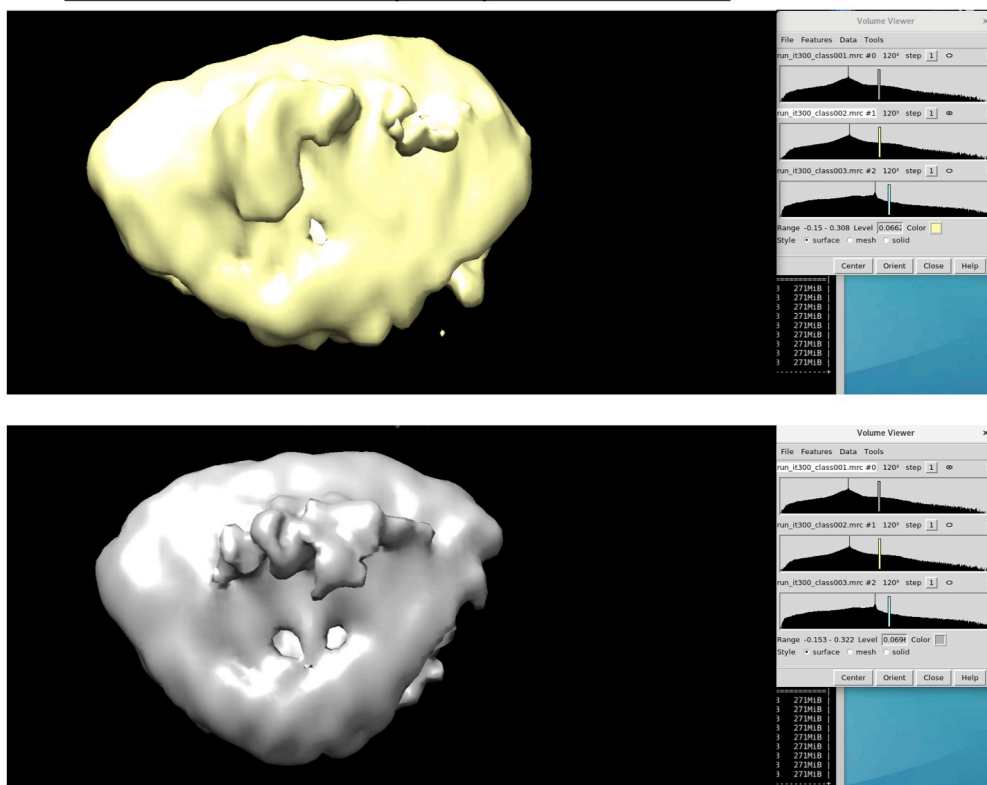


Activity Report –CM01 – 16 to 19 September 2019

We aim at solving the structure of temporal supercomplexes formed around Photosystem I (PSI) during steady state and under stress conditions by the cryo EM technique. So far our visits yielded two high-resolution structures of two distinct forms of Photosystem I (PSI) from the halotolerant green algae *Dunaliella salina*. We solved the crystal structure of this supercomplex at 3.2 Å resolution (manuscript under consideration in Nature Plants PDB 4KX8). The second visit yielded structure at 3.5 Å resolution of a much larger form of PSI containing 8 additional subunits and about 40 additional prosthetic groups (manuscript in preparation PDB 6SL5). In the current experiment we attempted solving larger complex containing PSII together with PSI from the red algae *C. Merolae*. The last visit yielded enough good data to supplement previous visit for high-resolution structure. 3D classification clearly shows two classes of particles indicating small and large supercomplexes (see Figure). We are processing the somewhat complicated data and are quite certain to get the two distinct classes at high resolution. We would like to continue our program and in next visit to collect data for solving the PSI supercomplex of *Chlamydomonas reinhardtii* mutant that under temperature stress lost its PSII.

The 3 days experiment exceeded all my expectations.

### **3D initial structures of PSI supercomplexes from *C. merolae***



Initial structure of large (up) and small (down) *C. merolae* PSI supercomplexes.