

Quality vs. Resolution in Cryo-EM Maps

Scott M. Stagg

sstagg@fsu.edu

With the explosive growth of single particle cryo-EM, standard, simple, and systematic methods are needed for evaluating the quality of a single particle reconstruction. Resolution as measured by Fourier shell correlation (FSC) alone is insufficient to evaluate the quality of a cryo-EM map. Many alternative metrics to the FSC have been introduced. Here, some of the metrics for evaluating the quality of cryo-EM maps will be discussed including some of the Stagg lab's efforts in this area. We have shown that plots of the number of particles contributing to a map vs. the resolution of a reconstruction, so called ResLog plots, can provide information about the quality of data collection and reconstruction. We will discuss recent results using ResLog plots to compare the quality of data collected on different instruments. We will also discuss our efforts to assess the quality of different cryo-EM maps by atomic model building.