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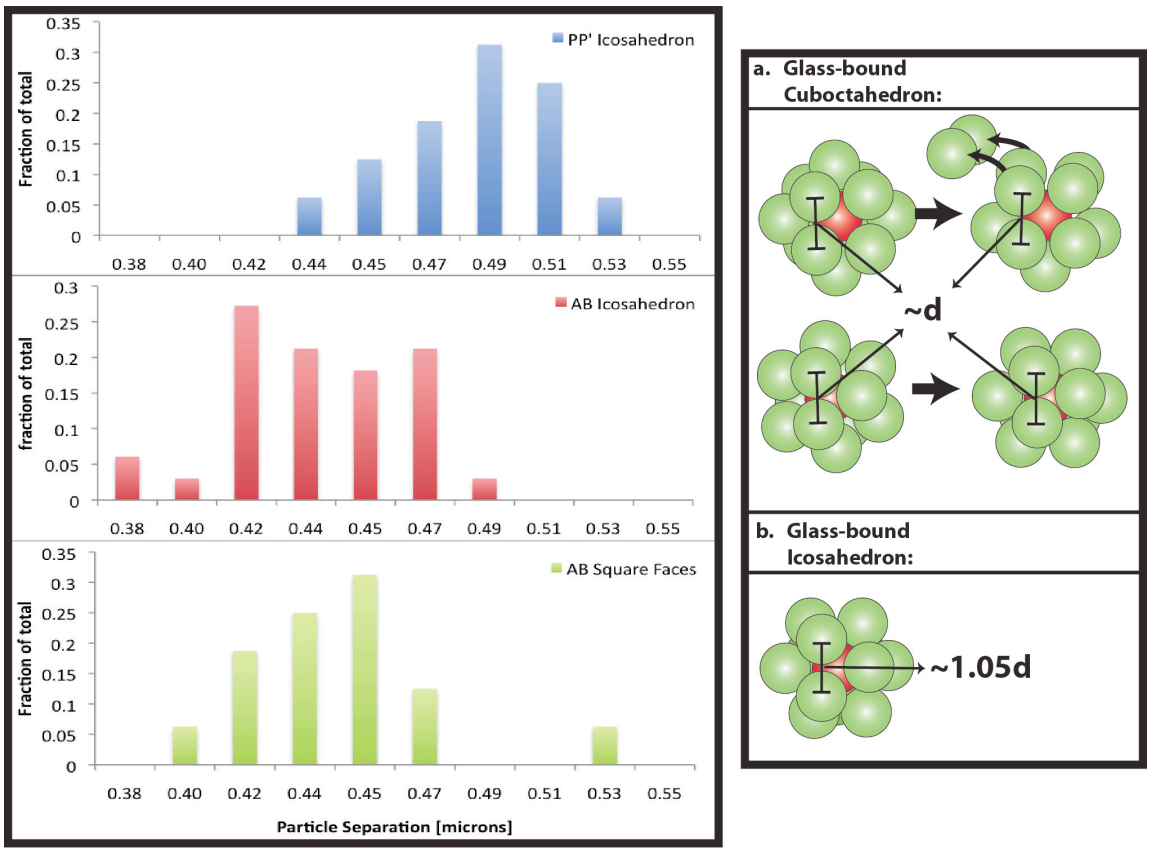

Supplemental Figure 1: Frequency distributions of particle-particle distances of glass-bound particles for PP' icosahedral clusters (blue), AB' icosahedral clusters (red) and AB' Tammes n=10 clusters (green). Since the particle separations in cuboctohedra are smaller than those in icosahedra, this analysis can reveal whether the transformation occurs prior to glass deposition (case a) or afterwards (case b). As the PP' clusters were released and loaded onto coverslips at low salt, it is hypothesized that the transformation occurred rapidly, prior to glass adhesion, and indeed the particles are separated by a significantly larger distance than for the AB' icosahedra released and mounted at high salt, which we hypothesize transform after glass adhesion. Notably, the square faces of n=10 Tammes clusters, which we hypothesize are relics of adhered cuboctohedra, match that of the AB' icosahedra, confirming that that separation corresponds to an effectively close-packed configuration. A two tailed student t-test indicates that the two icosahedra separation distributions are statistically different, with a $p<10^{-6}$. The measured distances do not correspond quantitatively to the expected 381 nm separation observed in FCC (111) crystals formed from the same particles. This is presumably due to the effects of diffraction induced image overlap and out of focus fluorescence skewing the centroids. Notably, the contribution of such effects should be consistent among icosahedra. The expected change in separation computed from a geometrical model of a 1+12 icosahedron is ~5% of a particle diameter, versus ~10% observed.