## A segment from particle center



## B segment from particle center



Figure S1 Radial distributions of A, and B segment of $A_{12}$-b-$B_7$ as a function of the distance from the aggregate's center of mass for onion structure (6416, 32.0M) reported in Figure 3.
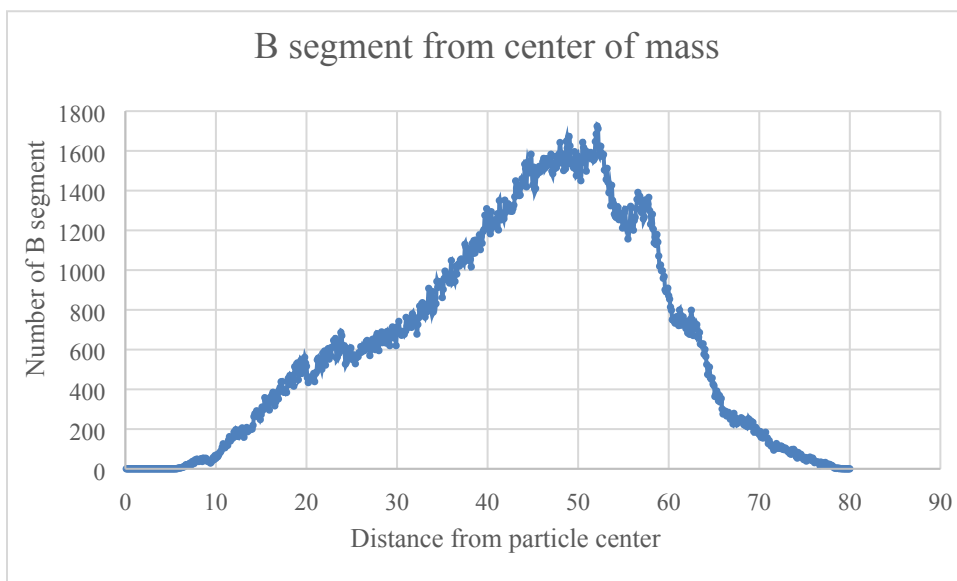
**A segment from center of mass**

*Number of A segment* (y-axis: 0, 500, 1000, 1500, 2000, 2500, 3000, 3500)

*Distance from particle center* (x-axis: 0, 10, 20, 30, 40, 50, 60, 70, 80, 90)

**B segment from center of mass**

*Number of B segment* (y-axis: 0, 200, 400, 600, 800, 1000, 1200, 1400, 1600, 1800)

*Distance from particle center* (x-axis: 0, 10, 20, 30, 40, 50, 60, 70, 80, 90)
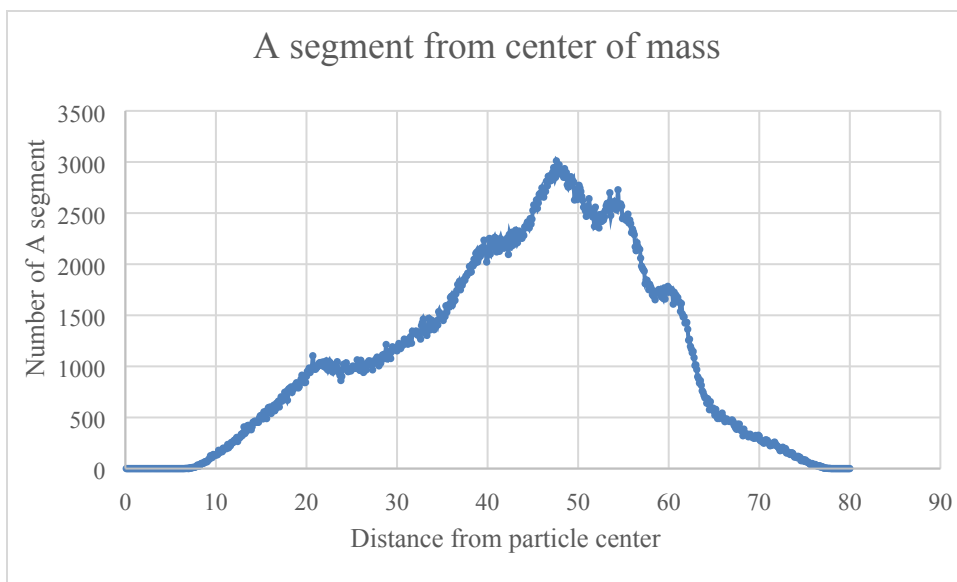
Figure S2 Radial distributions of A, and B segment of $A_{12}$-b-$B_7$ as a function of the distance from the aggregate's center of mass for double-wall ring structure (72477, 32M) reported in Figure 3.

**A segement from center of particle**

*number of A segement* (y-axis)

*Distance from particle center* (x-axis)



**B segement from center of particle**

*Number of B segment* (y-axis)
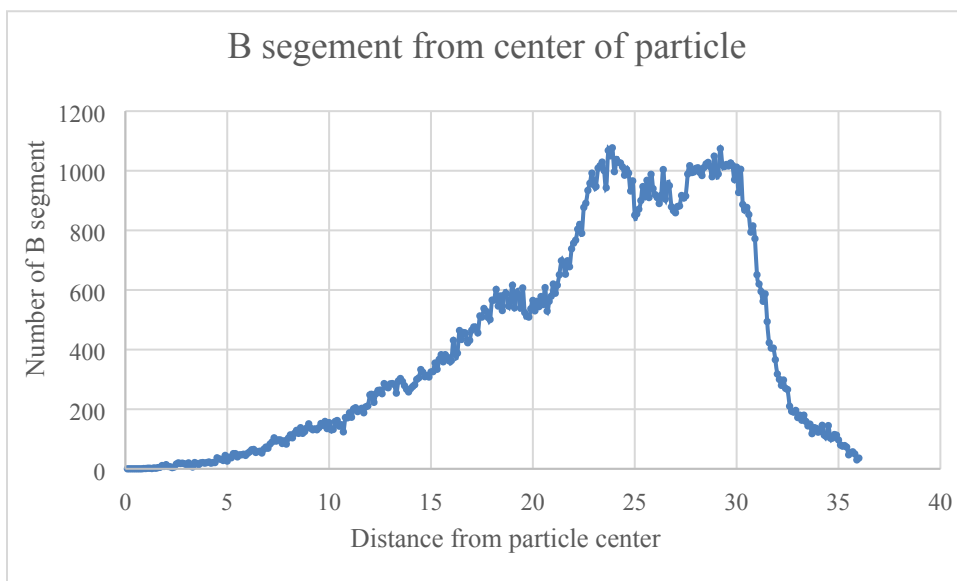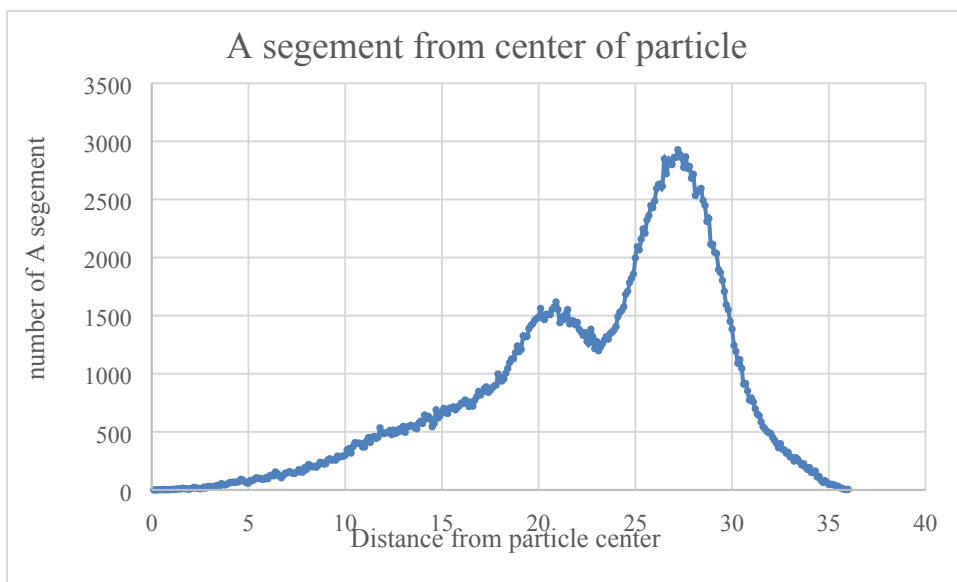
*Distance from particle center* (x-axis)

Figure S3 Radial distributions of A, and B segment of $A_{12}$-b-$B_6$ as a function of the distance from the aggregate's center of mass for last tri-continuous structure (16360, 9.75M) reported in Figure 4.
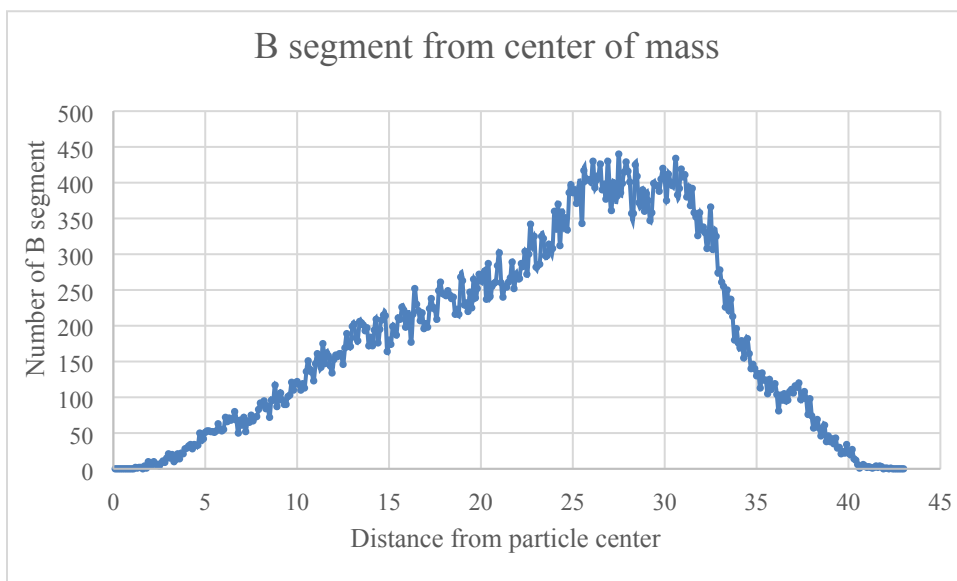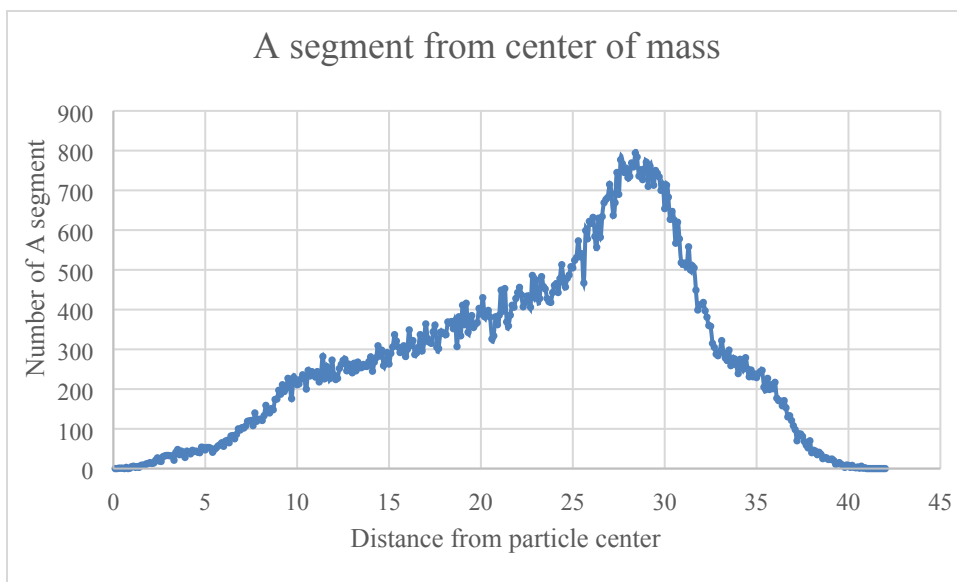
Figure S4 Radial distributions of A, and B segment of $A_{12}$-b-$B_8$ as a function of the distance from the aggregate's center of mass for disk-like structure (10798, 8.5M) reported in Figure 5.