Impact of a Binary Size Distribution on the Clustering Instability R. BRENT RICE, CHRISTINE M. HRENYA, University of Colorado - Boulder — The impact of a binary size distribution on clusters formed during rapid, granular, simple shear flow is investigated via discrete-particle simulations. Two novel characterization methods are used to provide physically meaningful insight into the behavior of the clusters. First, an analysis of the concentration distribution in the system provides insight into the average volume and concentration associated with clustered and non-clustered regions, as well as size segregation. Second, a new feature of the radial distribution function is identified for dissipative granular systems, namely a long-scale minimum. This technique substantiates a subset of the results obtained using the former technique, and also provides information on the length scale between clusters. The characterization results suggest that the prevalence of clusters decreases with an increase in size disparity, and that large particles preferentially segregate within the clustered region.

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