Supplementary material for: Clustering in vibrated monolayers of granular rods

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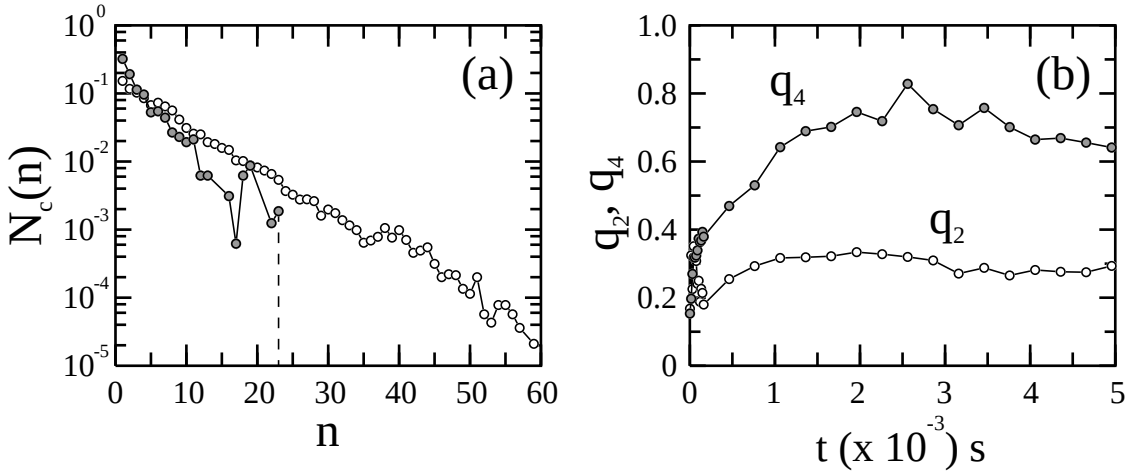

FIG. 1. (a) Normalised cluster distributions for the case $\kappa = 8$ and $\varphi = 0.78$. Gray circles: distribution for the initial configuration (prepared by hand) before shaking. Open circles: average distribution calculated in the sampling time interval of the experiment. (b) Initial time evolution of the order parameters q_2 and q_4 for the same experiment as in (a).

- Fig. (a) shows two cluster distribution functions: that of the initial configuration, prepared by hand, and a distribution obtained from an average over configurations in the steady state (which can be assumed to faithfully represent the final distribution). Both distributions exhibit exponential behaviour, but the initial distribution is more noisy and (i) presents a much higher fraction of monomers, and (ii) does not contain large ($n > 23$) clusters, i.e. the distribution decays much faster. In Fig. (b) the time evolution of the q_2 and q_4 order parameters is shown for the same case and experiment as in (a). After a rapid variation in the first few minutes, the parameters slowly change and eventually level off at approximately constant mean values.

- We also include two movies for the time evolution of local order parameters. In each animation the corresponding local order parameter field is superimposed on the particle configurations as a false-colour map. Holes correspond to particles not detected by the imaging software.

tetratic-k4e75.avi: This movie shows the local tetratic order parameter for an experiment with $\kappa = 4$ and $\varphi = 0.75$. In the dynamics we can see the formation of four point defects located near the walls and separated by relative angles of aproximately 90º.

smectic-k10e70.avi: This movie shows the local smectic order parameter for an experiment with $\kappa = 10$ and $\varphi = 0.70$. Fluctuations in the local smectic field can be seen as a result of the formation and destruction of smectic regions with relatively large number of layers.