

**Supplementary material:**

**Structural change and dynamics of colloidal gels under oscillatory shear  
flow**

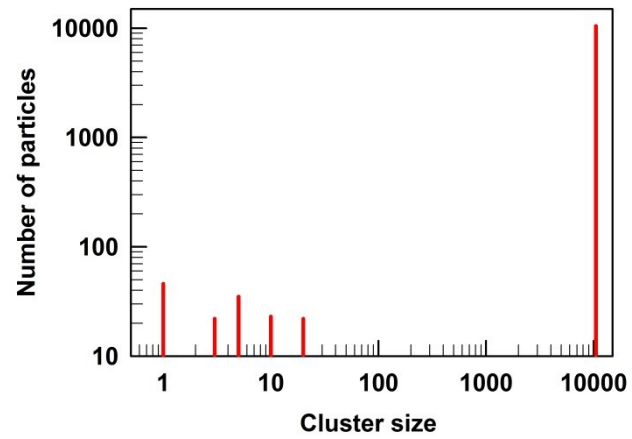
**Jun Dong Park, Kyung Hyun Ahn\*, Seung Jong Lee**

School of Chemical and Biological Engineering, Institute of Chemical Process,

Seoul National University, Seoul, 151-744 Korea

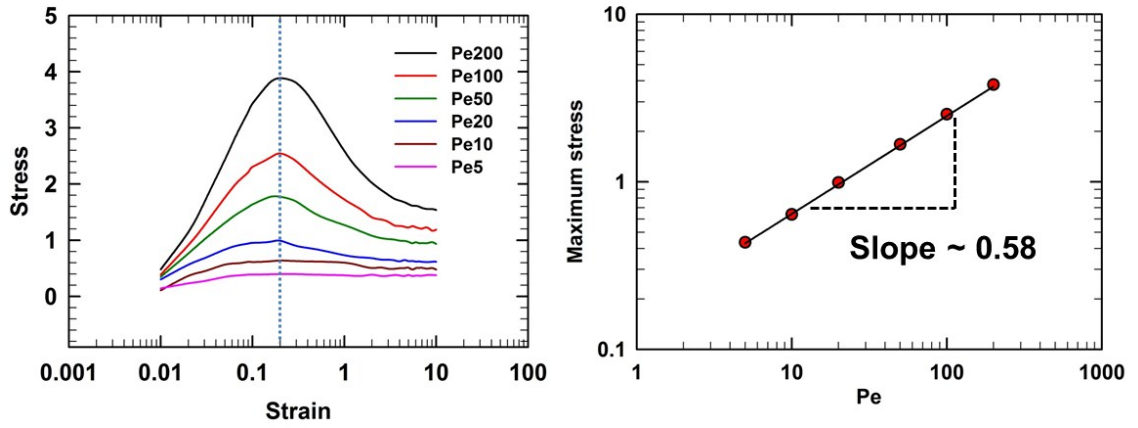
\*Corresponding author: [ahnnet@snu.ac.kr](mailto:ahnnet@snu.ac.kr), Tel.: +82 2 880 8322

- **Measures of initial colloidal gel on the cluster length scale.**



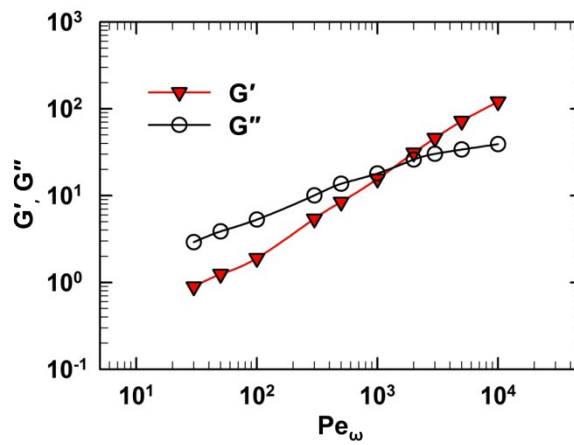
**Figure S1:** Particle number distribution according to the cluster size at initial state. Among the 10648 particles used, 99% of the total particles are aggregated to form a colloidal gel network structure.

- Stress overshoot phenomena of the colloidal gel.



**Figure S2:** Stress overshoot behavior under startup shear flow. (Left) Dashed line indicates the strain, where the stress maxima are observed. Power-law increase of the stress maximum with Pe. (Right)

- Frequency sweep result.



**Figure S3:** Storage modulus  $G'(\omega)$  and loss modulus  $G''(\omega)$  as a function of  $Pe_\omega$ .

- Results at various strain amplitudes

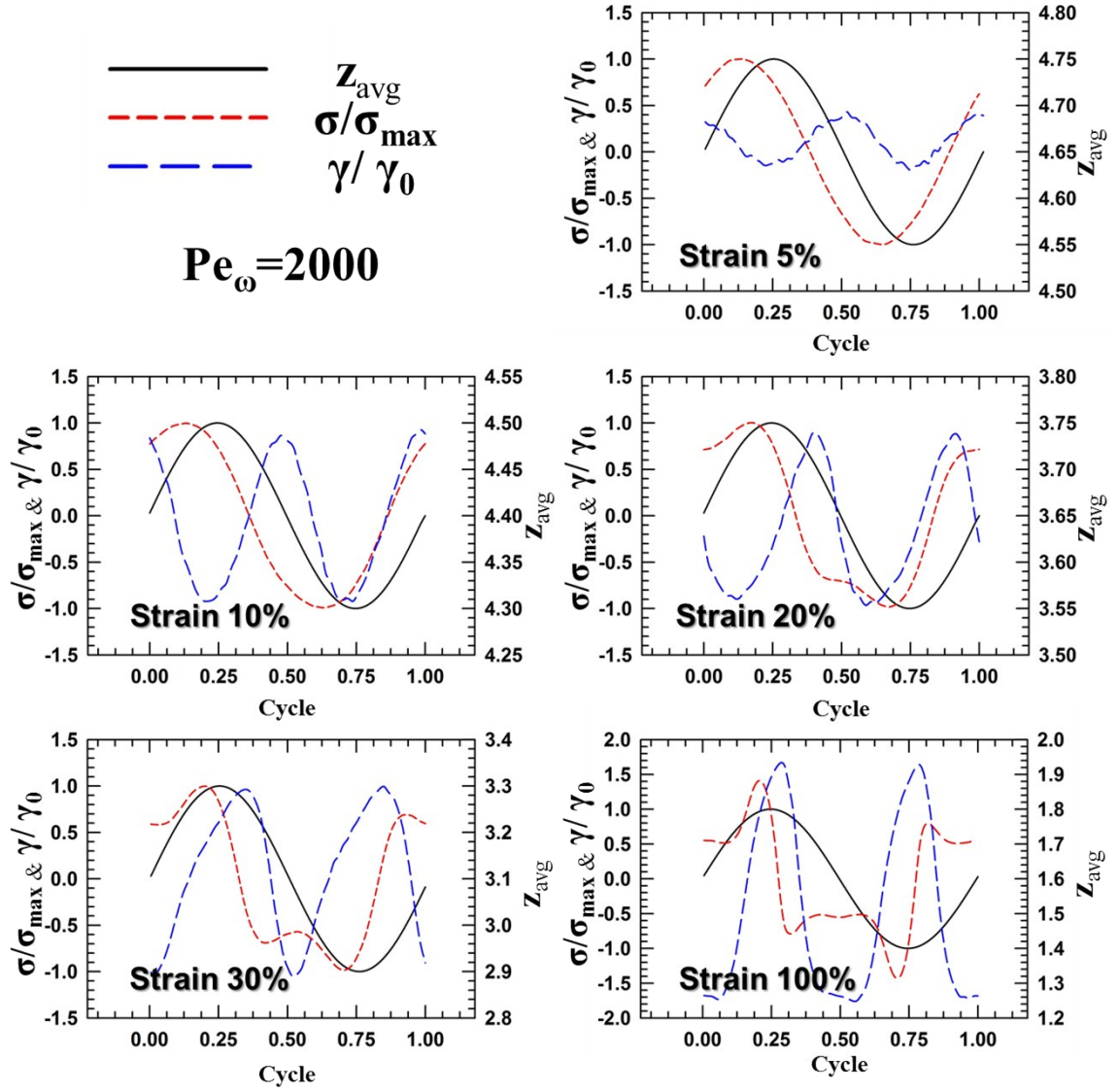


Figure S4: Results at various strain amplitudes.