

## Supplementary Information for

### Dispersion and Aggregation of Graphene Oxide in Aqueous Media

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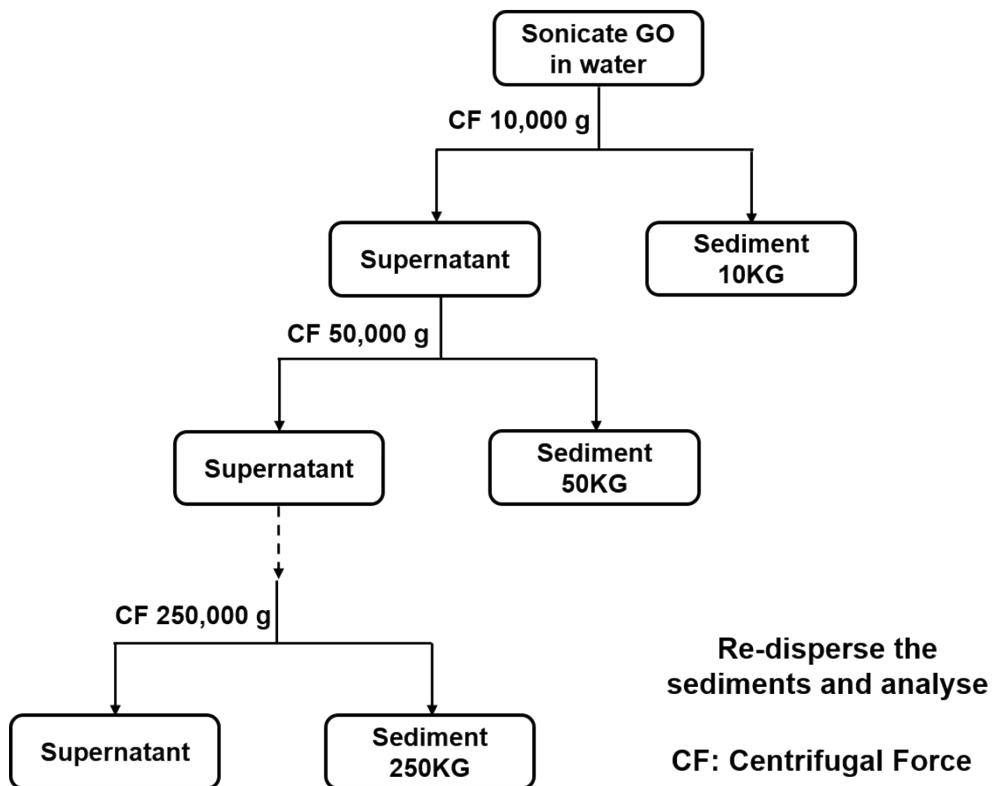
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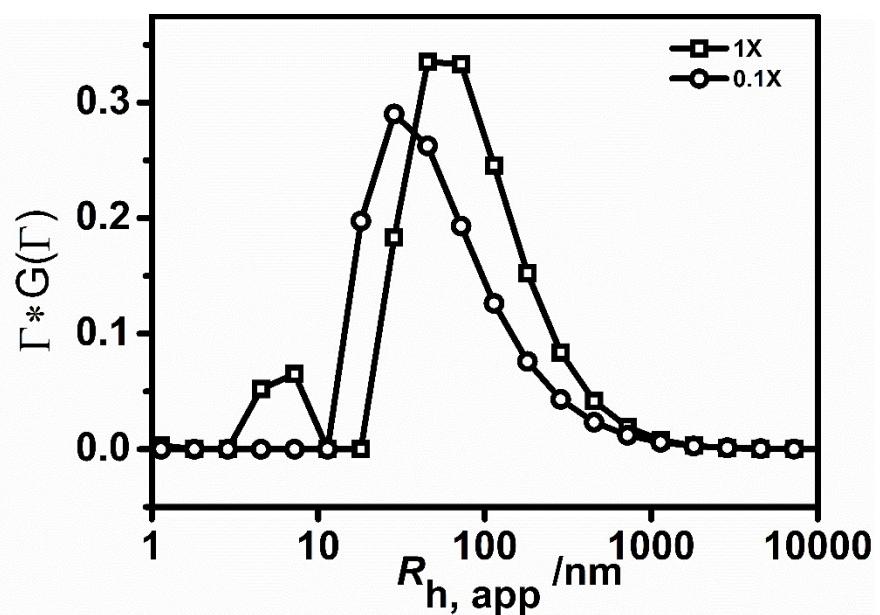
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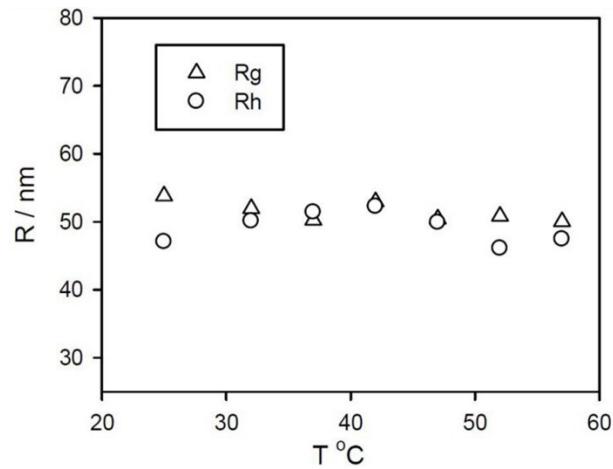
## Supplementary Figures S1-S8



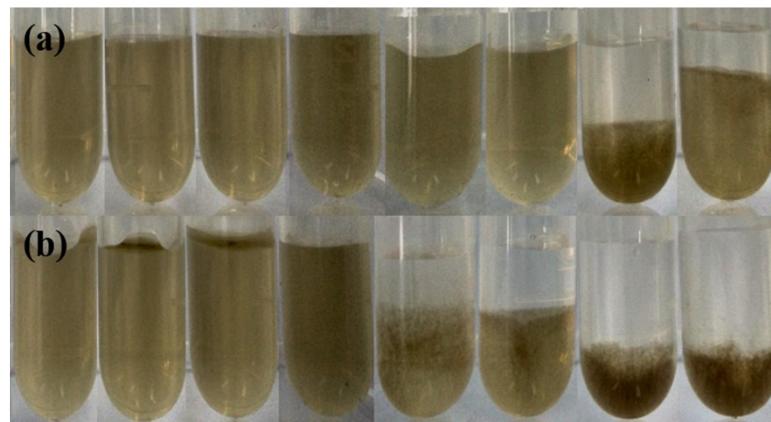
**Figure S1.** Scheme of a multi-step ultracentrifugation-based process in separating different sizes of GO sheets.



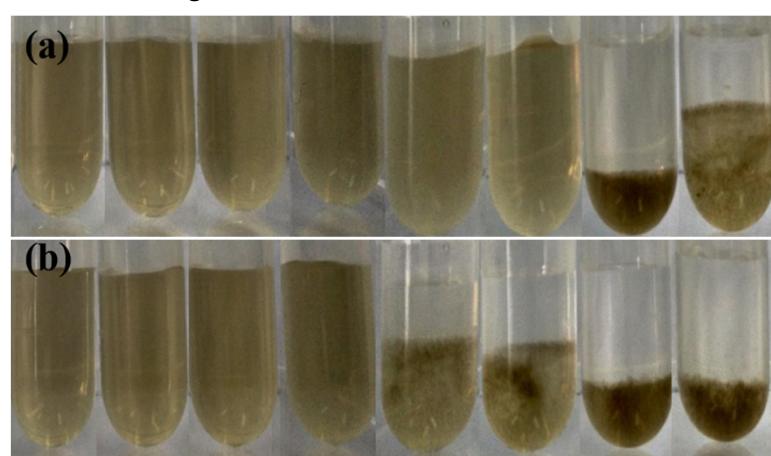
**Figure S2.** Size distribution of GO sheets in different concentrations. 1x represents initial solution of GO dispersion prepared under the centrifugal force of 150,000 g.



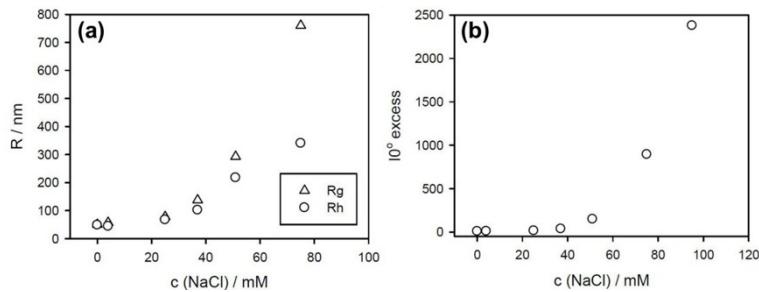
**Figure S3.** Size distribution of GO dispersion solution at different temperature (T). GO dispersion solution was prepared under the centrifugal force of 150,000 g.



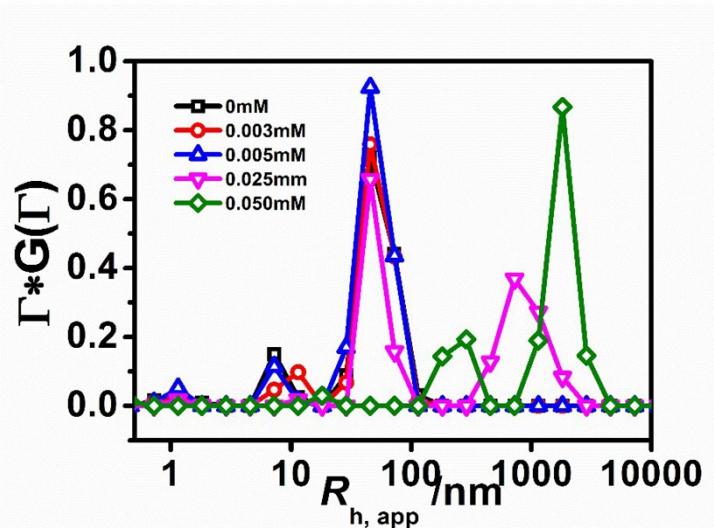
**Figure S4.** (a) Evolution of the aggregation state of GO dispersions with different concentration of NaCl, the concentration of NaCl are 0.02, 0.05, 0.25, 0.50, 2.50, 5.00, 24.00 and 91.00 mM (from left to right); (b) Same concentration of MgCl<sub>2</sub> in GO dispersion solutions prepared under the centrifugal force of **10,000 g**.



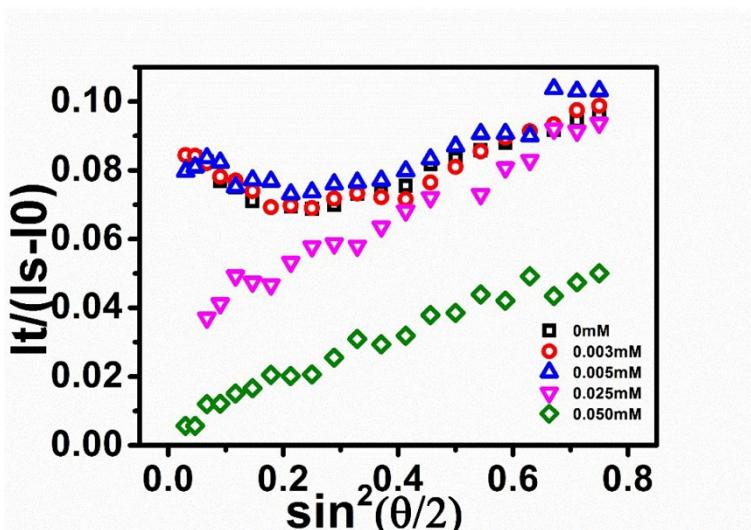
**Figure S5.** (a) Evolution of the aggregation state of GO dispersions with different concentration of NaCl, the concentration of NaCl are 0.02, 0.05, 0.25, 0.50, 2.50, 5.00, 24.00 and 91.00 mM (from left to right); (b) Same concentration of MgCl<sub>2</sub> in GO dispersion solutions prepared under the centrifugal force of **50,000 g**.



**Figure S6.** (a-b) Size (a) and excess scattered intensity (b) of GO dispersion solutions with different concentration of NaCl. GO dispersion solution was prepared under the centrifugal force of 150,000 g.



**Figure S7.** Size distribution of GO dispersion solution with different concentration of  $\text{AlCl}_3$ . GO dispersion solution was prepared under the centrifugal force of 150,000 g.



**Figure S8.** Angular dependence of GO dispersion with different concentration of  $\text{AlCl}_3$ . GO dispersion solution was prepared under the centrifugal force of 150,000 g.