Scientific Achievement
Shown experimentally that graphene oxide (with low mass but large surface area) generates stable dispersions of CO$_2$ analog fluid in high-salinity brine.

Significance and Impact
Monolayer platelets of graphene oxide adsorb at fluid/fluid interface easily, serving as highly effective amphiphile, thereby offering potential for large-scale generation of CO$_2$ dispersion in brine. This can reduce the risk of leakage and increase the efficiency of CO$_2$ storage.

Research Details
- Aqueous dispersions of graphene oxide nanoplatelets (GONP) show exceptional stability for range of salinity (0-5 wt% NaCl) and pH (2-10), largely due to small van der Waals attraction
- Even 0.001 wt% of GONP generate stable emulsions, suggesting that it adsorbs at fluid/fluid interface in plane, with large surface area per mass providing good interfacial stability