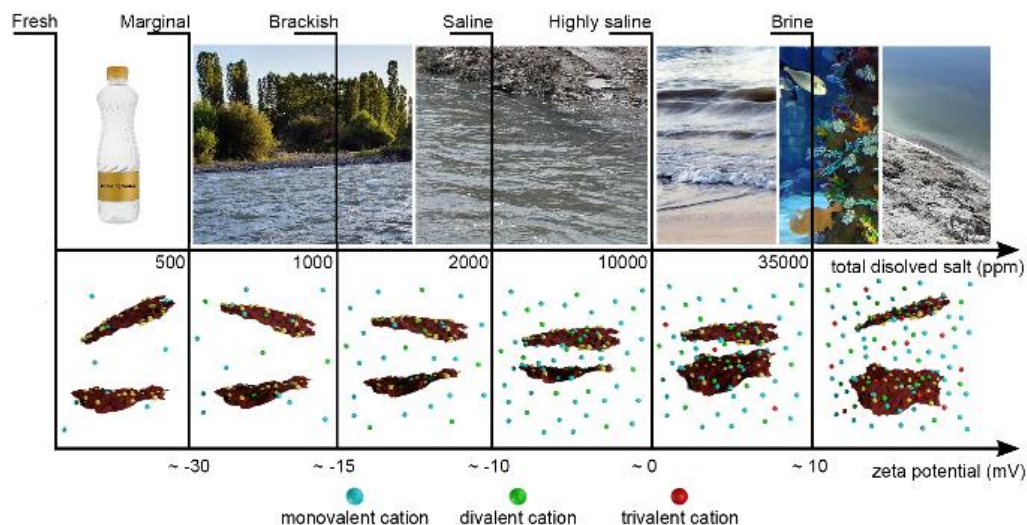


Low electrostatic bending stiffness of graphene oxide sheets determines the conformation and consequently their environmental fate in aquatic environments

Our paper on anomalously low electrostatic bending stiffness of graphene oxide just got accepted for publication in journal of materials chemistry A. Congratulations to Dr. Taheri for his publication.



This paper details the environmental fate of graphene oxide as the most studied member of the mushrooming family of 2D materials in aquatic environment. We demonstrate that, in contrast to what is often reported and perceived, the electrostatic double layer forces (interactions), the same forces that dictate the supercapcitive performance of these materials, play an inconsequential role, at best, on the stability and the conformation of graphene oxide and it is indeed the often-neglected Casimir-vdW forces that govern the physical structure of graphene oxide in the environment. This essentially means that the toxicity can easily pose a threat to aquatic life at global levels not seen before due to the huge surface area of these technologically relevant materials ($\sim 2000 \text{ m}^2/\text{g}$).