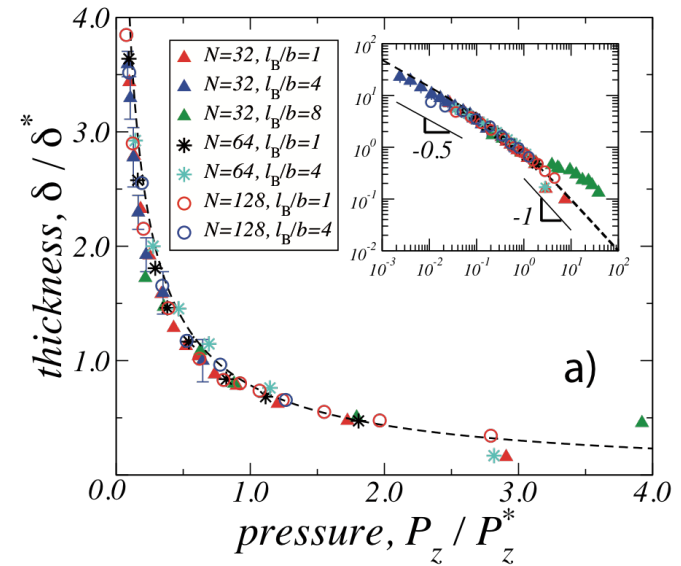
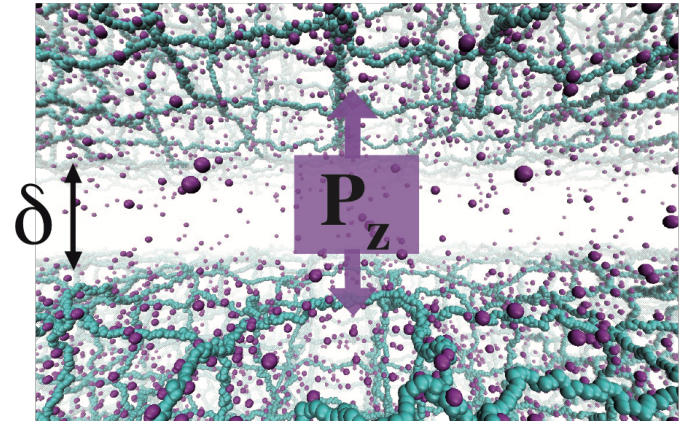


Interactions Between Charged-Polymer Surfaces

Polyelectrolyte (PE) gels are highly-swollen networks of cross-linked polymers with ionizable groups. Surfaces formed by these charged-polymers are highly abundant in both synthetic (e.g., contact lenses, smart drugs) and biological systems (e.g., in connective tissues). It is, hence, desirable to understand the interactions between these surfaces and possibly relate experimentally measurable properties (e.g., swelling ratio or lubrication properties) to the molecular details. In our recent publications, we first revisit a previous theory and compare the results to simulations of two highly-swollen surfaces of PE gels. We introduce scaling arguments to relate electrostatic strength of the solvent and polymerization degree to the observed pressure regimes and a threshold pressure separating these regimes.



A. Erbaş and M. Olvera de la Cruz, *Macromolecules* (2016). DOI: [10.1021/acs.macromol.6b01416](https://doi.org/10.1021/acs.macromol.6b01416)