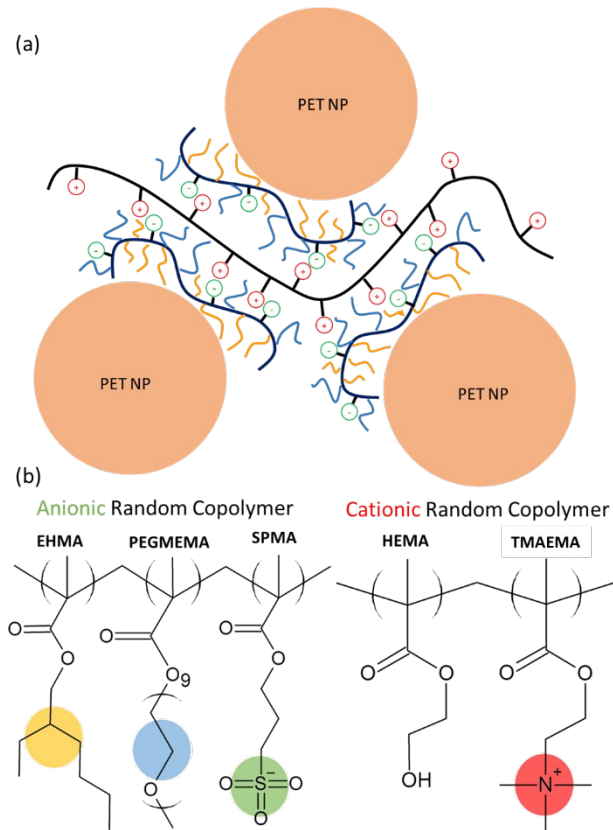


Filtering Nanoplastics with Polyelectrolytes



Polyethylene terephthalate nanoparticles are absorbed due to interactions with methacrylate random copolymer polyelectrolyte complexes.

Wang, J.; Waltmann, C.; et al. *Langmuir*. 2023; 39:21.

Scientific Achievement

Designer polyelectrolyte complexes were used to remove nanoplastics, which are a pollutant of growing concern, from water.

Significance and Impact

Nanoplastics are normally difficult to remove from water. Here we use a material made of cheap and easy to synthesize polymers can remove 99% of nanoplastics by designing the fractions of different monomer components.

Research Details

- Random copolymers with different fractions of hydrophobic monomers were tested experimentally for their ability to interact with a PET surface and absorb nanoplastics in a polyelectrolyte complex
- Simulations shed light on how polymer conformation is controlled by the hydrophobic monomer fraction leading to non-monotonic trends in experiment and simulation

