Capture of nanoplastics with nanocellulose

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The accumulation of nanoplastic particles in marine environments poses a significant threat to the ecosystem. Recent studies have shown that cellulose, a naturally abundant biopolymer, holds promise as an adsorbent for nanoplastics in seawater [1]. This suggests that to optimize nanoplastic adsorption, we need to understand how nanoplastics and cellulose interact at the atomic scale. This project aims to simulate, via atomistic molecular dynamics, the adsorption of nanoplastics on cellulose in model systems. Several aspects could be investigated, such as the mechanism of adsorption, which includes the dynamics of nanoplastics in water and in the vicinity of the cellulose surface or the effect of ionic concentration in seawater.

References:

[1] *Nature Communications volume 13, Article number: 1814 (2022)*