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Nanoporous Membranes via Directed Self-assembly of Polymer-protein Hybrid Nanoparticles

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Extended Abstract

We describe the synthesis and self-assembly behavior of polymer-protein conjugate nanoparticles at fluid interfaces, an effect well-known from typical Pickering emulsions. The particles exhibit an unusually high interfacial activity and can even self-assemble to form hierarchical networks composed of capsules and fibers. Self-assembly of the hybrid particles at flat interfaces followed by crosslinking the polymer matrix and denaturation of the protein moieties leads to permeable, yet highly flexible and stable membranes. We demonstrate the membrane performance and stability with flux and size exclusion measurements.

References

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