

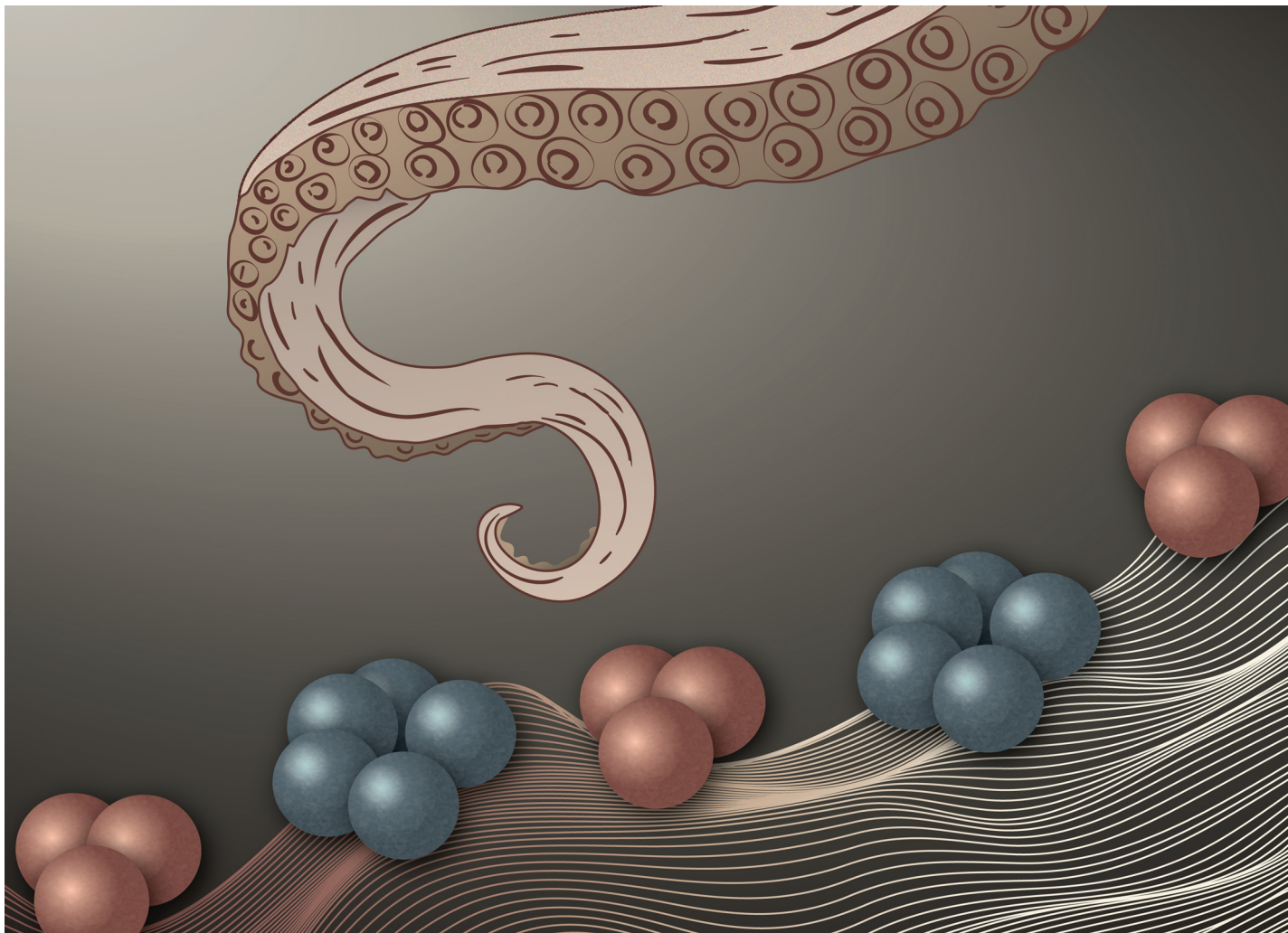
RSC Applied Polymers

**The application of polymers,
both natural and synthetic**

Interdisciplinary and open access

rsc.li/RSCApplPolym

**Fundamental questions
Elemental answers**



Showcasing research from Professor Cecilia Roque's laboratory, NOVA School of Science and Technology (NOVA FCT), NOVA University Lisbon

Kinetics of charge-dependent reversible condensation of reflectin nanostructures

Reflectins are specialized proteins unique to cephalopods, organized into nanostructures within cells that enable light reflection and camouflage. This study investigated the reversible *in vitro* self-assembly of recombinant reflectins, triggered by pH changes. One reflectin sequence exhibited rapid kinetics and exceptional reversibility, successfully completing up to seven pH-cycles within just 20 minutes. Its enhanced performance is attributed to a higher concentration of pH-sensitive residues and an optimal charge distribution. These findings pave the way for designing reflectin-inspired biophotonic systems, with potential applications in sensors, adaptive optics, and dynamic display technologies.

As featured in:



See Ana Margarida Gonçalves Carvalho Dias, Ana Cecília Afonso Roque *et al.*, *Mater. Adv.*, 2025, 6, 157.