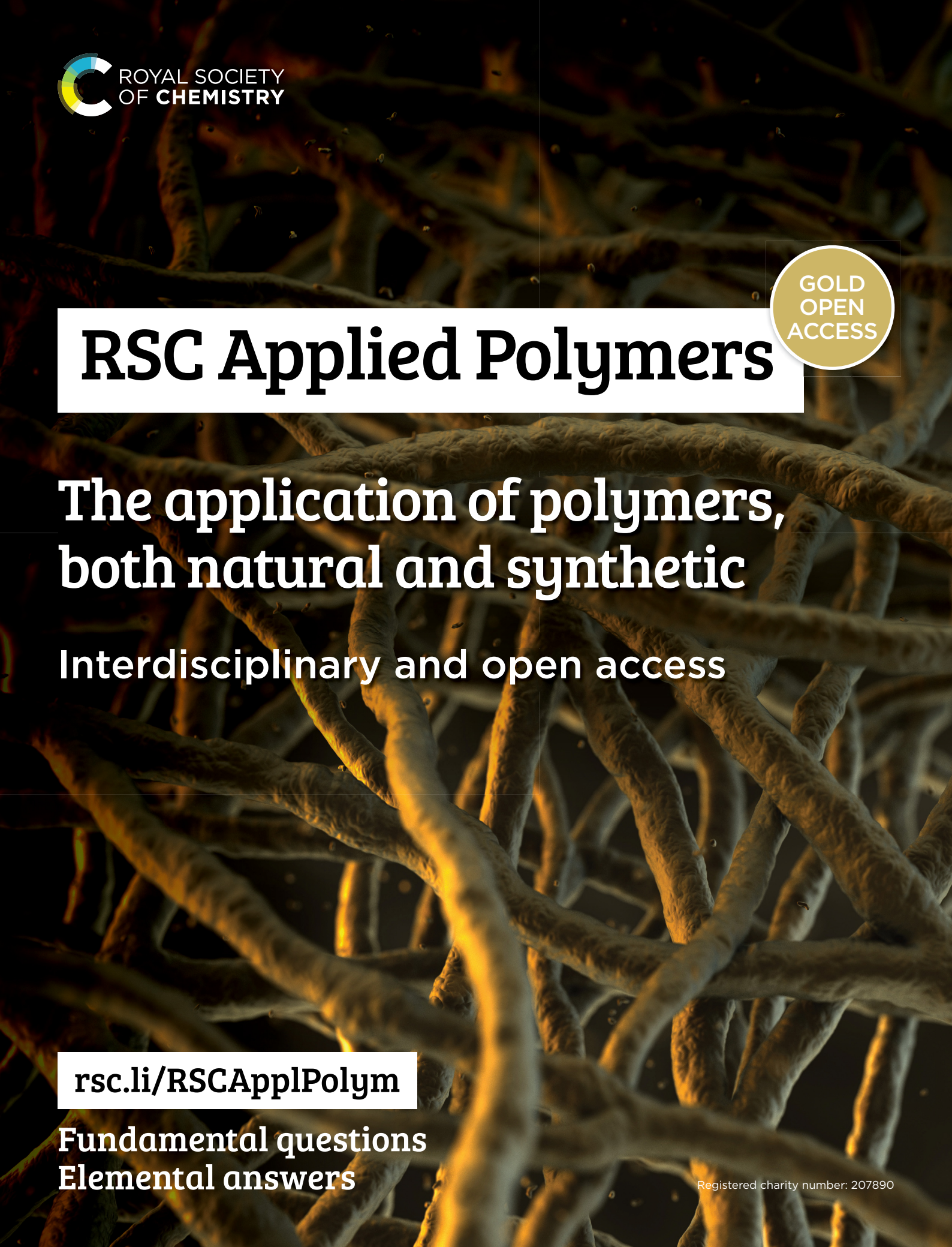
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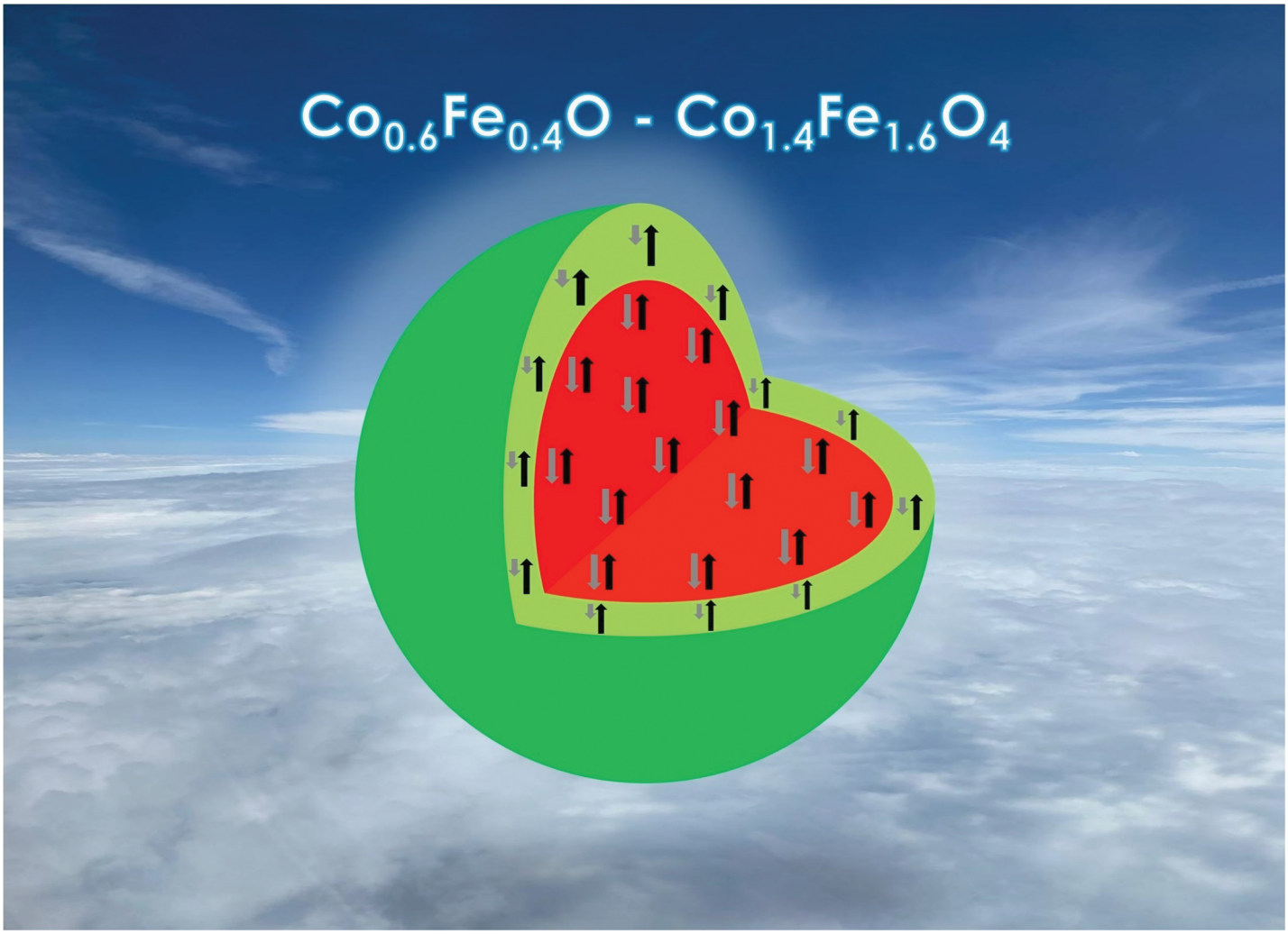

Showcasing research from Professor Nguyen Thi Kim Thanh's laboratory, Department of Physics and Astronomy, University College London, London, UK.

$Co_{0.6}Fe_{0.4}O$–$Co_{1.4}Fe_{1.6}O_4$ core–shell nanoparticles with colossal exchange bias

The work explored the interplay between antiferromagnetic and ferrimagnetic phases in a colloidally stable core–shell nanoparticle system, which exhibits a record exchange bias of 10.34 kOe. The nanoparticles were synthesised *via* a simple, highly reproducible one-step thermal decomposition method. Atomic-resolution STEM confirms the epitaxial relationship between the core and the shell. Time-of-flight neutron diffraction and magnetometry measurements reveal a Néel temperature of 397 K in the antiferromagnetic core. These findings highlight the system's potential for future applications in nanospintronics and nanomedicine.

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As featured in:

See Nguyen Thi Kim Thanh *et al.*, *Nanoscale Horiz.*, 2025, **10**, 1965.

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