

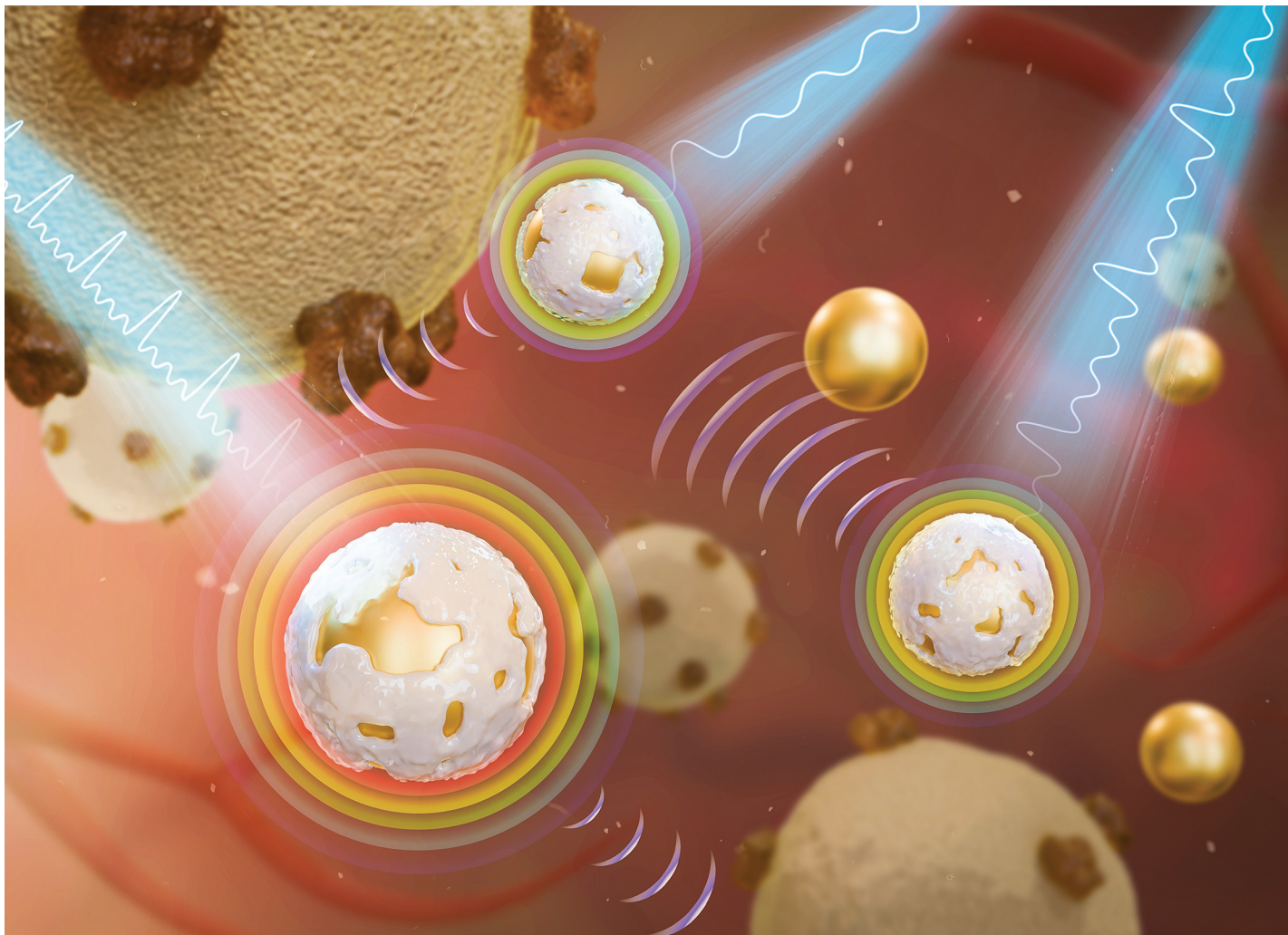
RSC Applied Polymers

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

Interdisciplinary and open access

rsc.li/RSCApplPolym

**Fundamental questions
Elemental answers**

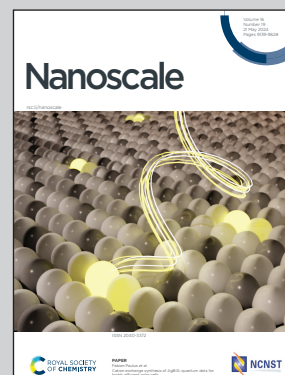


**Showcasing work from the Photothermal Radiation Group
at Harbin Institute of Technology, Harbin, China.**

**Enhancement of the photoacoustic effect during the
light-particle interaction**

The photothermal and photoacoustic responses of gold nanospheres surrounded by water excited by a pulsed laser were obtained *via* a two-temperature model. The interplay between pulse duration and interface thermal resistance and its effect on the photothermal and photoacoustic performance were revealed. As the pulse duration decreases, increasing the interfacial thermal conductivity can substantially enhance heat transfer between the gold nanosphere and surrounding water. More importantly, when increasing the thermal conductivity, it was found that there is an optimal pulse duration within the range of 10 ps - 10 ns to maximize the photoacoustic effect.

As featured in:



See Yatao Ren, Renxi Gao *et al.*,
Nanoscale, 2024, **16**, 9335.