

# RSC Applied Polymers

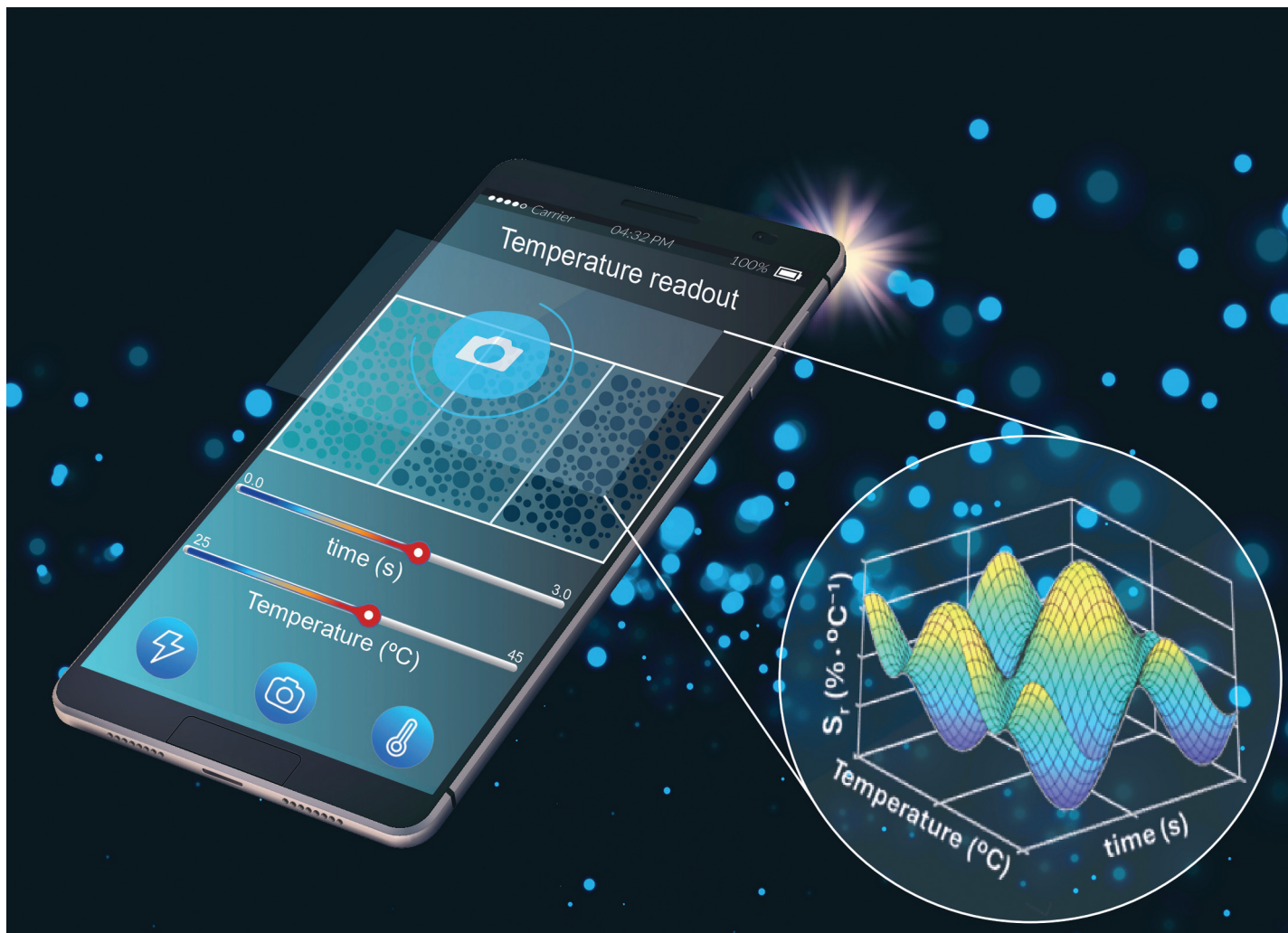
**The application of polymers,  
both natural and synthetic**

**Interdisciplinary and open access**

**[rsc.li/RSCApplPolym](https://rsc.li/RSCApplPolym)**

**Fundamental questions  
Elemental answers**



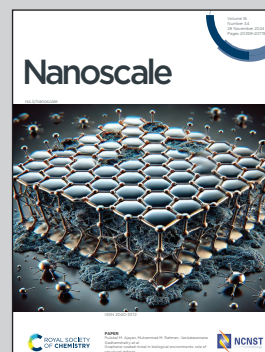


Showcasing research from Professor Rute Ferreira from the Department of Physics and CICECO (Aveiro Institute of Materials), University of Aveiro, Campus de Santiago Aveiro 3810-197 Portugal.

Time-gated multi-dimensional luminescence thermometry via carbon dots for precise temperature mobile sensing

A novel time-gated luminescence thermometry approach has been developed, leveraging surface-engineered carbon dots (CDs) based on dibenzoylmethane and rhodamine B. This technique offers resilient and precise temperature measurement under varying environmental conditions. Quantifiable using spectrometer analyses or smartphone cameras, up to 30 time-gated thermometric parameters can be obtained per sample. This method delivers a maximum relative sensitivity of  $7.9\% \text{ }^{\circ}\text{C}^{-1}$ , outperforming current CD-based thermometers and enabling temperature readouts with smartphones.

As featured in:



See Albano N. Carneiro Neto, Rute A. S. Ferreira *et al.*, *Nanoscale*, 2024, 16, 20532.