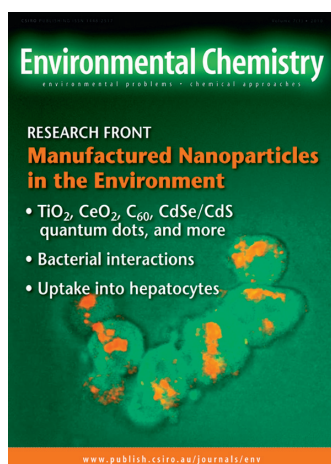




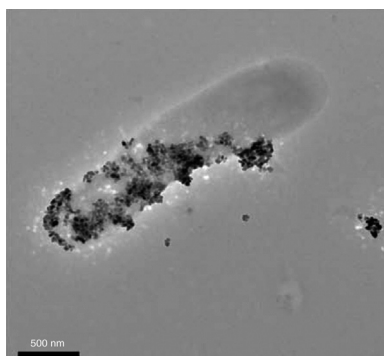
# Environmental Chemistry

environmental problems • chemical approaches



## Cover

Nanotechnology is an important industry but its main products – nanomaterials (NMs) – may pose a significant risk to the environment. This Research Front represents a snapshot of some of the most exciting research currently being undertaken in the environmental chemistry of NMs, particularly in relation to ecotoxicology. The image shows a combined F- and E-CARS image of primary hepatocytes dosed with TiO<sub>2</sub>. This approach allows the cell structure (green) and the nanoparticles (red) to be imaged at the same time (see T. M. Scown et al., pp. 36–49).



A key aspect of understanding the impact of engineered nanoparticles on the environment is to examine the interaction between these particles and microorganisms. In their Highlight, Aruguete and Hochella discuss current knowledge about such interactions (see pp. 3–9), which are not always negative. The image shows a *Shewanella oneidensis* MR-1 cell coated with  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> nanoparticles. Under anaerobic conditions, *S. oneidensis* respire using iron oxide instead of oxygen.

## RESEARCH FRONT – MANUFACTURED NANOPARTICLES IN THE ENVIRONMENT

### FOREWORD

Manufactured nanoparticles in the environment

*Jamie R. Lead*

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### HIGHLIGHT

Bacteria–nanoparticle interactions and their environmental implications

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