

# ENVIRONMENTAL EFFECTS AND FATE OF ENGINEERED NANOMATERIALS

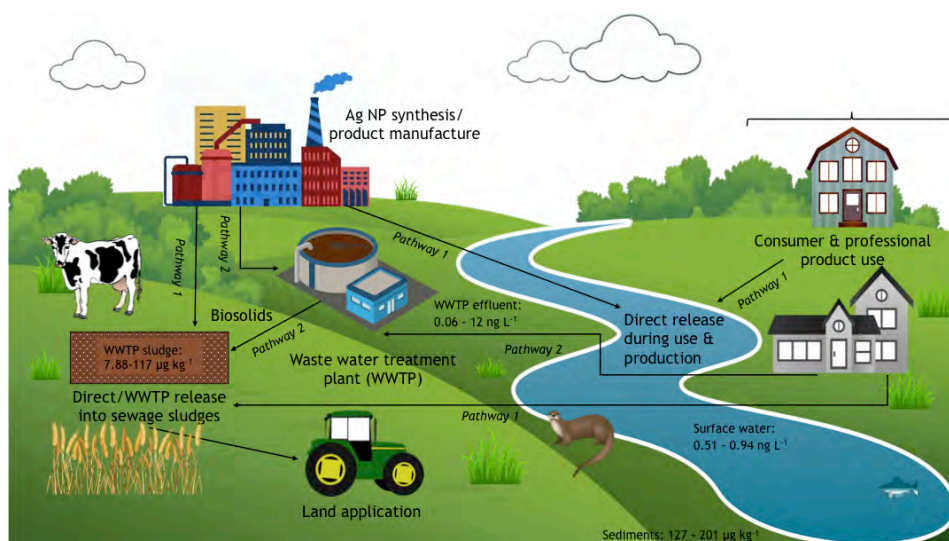
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Engineered nanoparticles are increasingly employed in industrial processes and consumer products and emitted into the environment. There are numerous concerns about these emissions and this has prompted investigations into the environmental transport, fate and ecotoxicology of nanomaterials.

Most exposure studies, however, employ high (and environmentally unrealistic) nanoparticle doses to overcome the analytical limitations of current detection methods. The excessive dosing leads to questions about whether the results are relevant for normal, natural scenarios. Hence, there is a pressing need for investigations, which are carried out at environmentally relevant nanomaterial concentrations, and the new methods of *stable isotope labelling and tracing* are ideally suited for this purpose.



The PhD supervisors have pioneered the use of such stable isotope tracing techniques and the current project will build on this successful work. The aim is to revisit previous exposure studies that were carried out at environmentally unrealistic conditions using stable isotope labelling and tracing.

With this, the project will provide new constraints, obtained under realistic conditions, on the behaviour and fate of engineered NPs in the environment. Such data are important, as they allow the public and policymakers to properly assess the risks and hazards associated with the use of engineered nanomaterials.

The project involves hands-on research at both the *CEH facilities in Wallingford* (Oxfordshire) and the *MAGIC Laboratories* at the Dept. of Earth Science & Engineering of Imperial College (see <http://www.imperial.ac.uk/earth-science/research/research-groups/magic/>). The work will have close links to large international research networks that address nanomaterial safety. As such, the project provides ample opportunities to interact and collaborate with scientists from a broad range of disciplines, both during the research as well as at project workshops and conferences.

The project is suitable for students with a background in geology, chemistry, physics, biology or equivalent experience. Further information on the planned research can be obtained directly from Mark Rehkämper at [markrehk@imperial.ac.uk](mailto:markrehk@imperial.ac.uk). Please don't hesitate to get in touch if you are interested.