

## **CATHERINE MOUNEYRAC**

Professor in Ecotoxicology, Vice-Rector for research and valorization (Université Catholique de l'Ouest - Angers, France)



*Safer by design concept*

### ***Biography***

Catherine Mouneyrac, Professor in Ecotoxicology, Vice-Rector for research and valorization (Université Catholique de l'Ouest - Angers, France) is titular of a PhD (University of Lyon I, France) in animal physiology, then a DSc in aquatic ecotoxicology (University of Nantes, France). Her general field research concerns the response of organisms to natural and chemical stress, namely nanomaterials. At the interface of fundamental and applied research, she aims to fulfill the gap between ecological and (eco)toxicological approaches, the final objective being to help environmental diagnosis. She collaborates with researchers all around the world and has participated to the conception and realization of numerous national and international scientific projects (NanoSalt; NanoReTox; NANoREG...). She is part of the Expert committee on the assessment of the risks related to physical agents, new technologies and development areas at the French Agency for Food, Environmental and Occupational Health & Safety (Anses). She is scientific officer at ANR and has been selected as a decision-makers a to follow the

national study course of the Institut des Hautes Etudes pour la Science et la Technologie (<http://www.ihest.fr>).

***Abstract***

Because the physicochemical properties of nanoparticles are distinct from their bulk counterparts, the fast growth of nanotechnologies has brought new industrial and business opportunities. The field of nanotechnology has shown a huge expansion during the last decade and the key challenge is how to take into account potential risks to human and environmental health posed by long-term exposure to and accumulation of nanoparticles? However, manufactured nanomaterial production is out pacing the ability to investigate environmental hazard using current regulatory paradigms, causing a backlog of materials requiring testing. Based on results from toxicological and ecotoxicological studies, researchers now have a better grasp on the relationships between the nanomaterials' physicochemical characteristics and their hazard profiles. Nowadays, it is expected that an integration of design synthesis and safety assessment will foster nanomaterials safer-by-design by considering both applications and implications. Multiple case studies will be presented on the safer by design concept.