

Engineered nanomaterial effects on soil and terrestrial communities

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Due to their unique characteristics the use and emission of engineered nanomaterials (ENM) is steadily rising and with it the concern for the effects on the environment. Soils are considered a major sink for many ENM and - dependent on the chemical and physical composition of soil - modifications and transformations of ENM in the environment take place. Numerous studies on the effects of this novel technology on single soil organisms have been done. To increase the ecological and environmental realism of the studied systems there is an urgent need to examine how biodiversity, community composition, multiple community interactions within the food web (e.g. predation, mutualism, herbivory) and associated ecosystem functions and services are affected by ENM exposure. Knowledge gaps exist regarding important issues such as trophic transfer, bioaccumulation and biomagnification of ENM within terrestrial systems and the detection of ENM under environmental conditions still poses challenges. Long-term and multi-generation studies at environmentally relevant ENM concentrations are also needed. Little is thus far known on how soil organisms affect ENM characteristics, for example through uptake and modifications within the organisms. Mechanistic approaches, plant, animal and microbial studies are welcomed to this session. We invite presentations on data from lab and field studies and aim at offering a platform for the presentation of new approaches on assessing the environmental risks posed by ENM at a higher organizational level within terrestrial ecosystems.