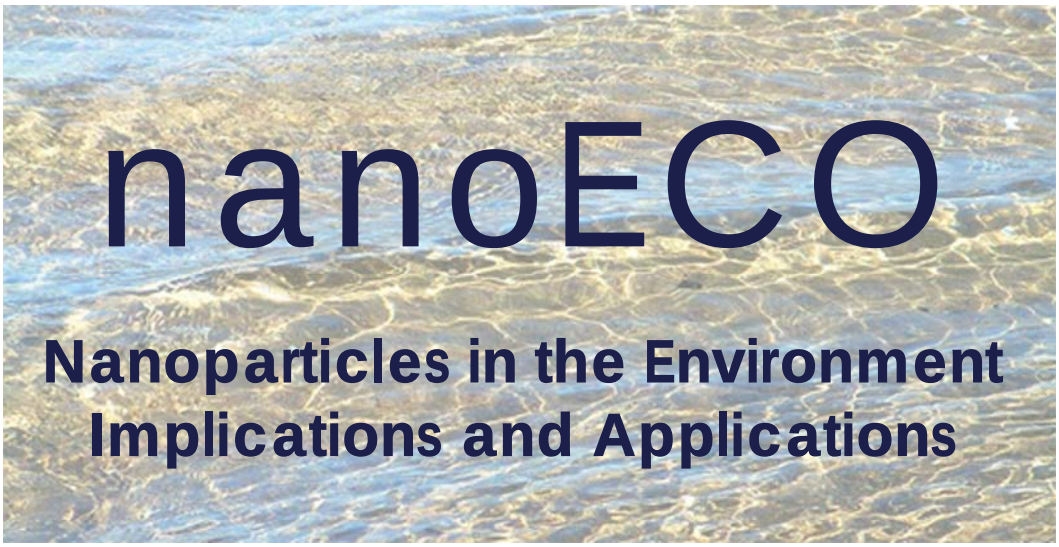

Book of Abstracts

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Nanoinventory: a fact-based model of the occupational exposure to manufactured nanoparticles and the maximal release potential into the environment in Swiss industry

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A large number of applications using manufactured nanoparticles <100 nm are entering industrial processes and consumer products. Manufactured nanoparticles might cause similar negative health effects to micro- and nano-sized ambient particles, and many potential effects on ecosystems are still unassessed.
We plan to create a quantitative model for the occupational exposure and the maximal release potential of nanoparticles in the Swiss industry by using:
a) A telephone survey of two hundred companies helped us to test the feasibility of a survey in the Swiss industry, and the quality, which can be achieved. The study gave us valuable information about the knowledge of safety-managers concerning the handling of nanoparticles in their companies. Several types of nanoparticles were reported to be used in quantities of more than 1000 kg/annum per company, but the majority of nanoparticle applications were small production scale. Most of the companies had many open questions about best practices: this shows again that guidelines and protection strategies should be developed soon.
b) These results allowed us to formulate the currently ongoing, detailed, representative survey on a national level. It is a questionnaire-based estimation of the potentially exposed employees, containing also questions about the amount and type of used particles to explore the maximal release potential. It reflects the widest possible range of different Swiss industries. This questionnaire-based survey will be completed in a second survey-round with information about the real exposure by a workplace exposure assessment in selected companies and for selected application types. The assessment in the identified companies will produce better estimates of the quantity of nanoparticles used by each company and verify/estimate their permanent and maximal emission into environment.
c) These potential/representative and real/selective datasets will be used to build a model of the potential release of nanoparticles and the occupational exposure to them in Swiss industry.
The chosen approach will be valuable for policy makers as well as for health, safety and environmental managers in industry: the information will be fact-based and statistically representative for the whole country. The data about occupational exposure and potential release can potentially be used as an important element for risk evaluations and prevention strategies.

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