

# and Numerical Study of Particle Size Manipulation for the Optimization of Particulate Monitoring Systems

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A methodology of particle grouping based on a mathematical model enables to induce manipulation of the particle size distribution using grouping and coagulation which leads, in turn, to the increase of filtration efficiency and detection ability of monitoring systems.

This study was conducted as a combined theoretical and experimental one. The current prototype consists of an inlet of particles (diameter of microns and sub-micron), a wavy tube combining oscillations created by a rotating disk at the entrance. The purpose of this setup is to encourage the aggregation of sub-micron particles into larger particles to increase their filtering efficiency. The experimental results indicate particle grouping in the system. It is concluded that this concept can serve as a tool for enhanced filtering efficiency of the grouped particles and thus can lead to increased efficiency of the particulate monitoring system.

## Promotional text

A methodology of particle grouping could increase the filtration efficiency and detection ability of particles of the radionuclides monitoring stations. Such ability could help to improve the particulate monitoring systems.

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## Oral preference format

in-person

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