



FALL VIRTUAL CONFERENCE

S2.3: A Case Study on Effects of a High Efficient Air Purifier on Reducing Aerosol Levels in a Classroom

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ABSTRACT

The spread of Coronavirus (COVID-19) through aerosols in the air is sufficiently likely. In order to reduce the concentration of viruses in the air, it is necessary to either replace or purify the air. Wherever effective ventilation is not possible, antiviral air indoor purifiers come into play.

The KIT (Karlsruhe Institute of Technology) has conducted a case study in a classroom (volume approx. 220 m³) of a primary school. Assessing aerosol level in the classroom, particle concentration is measured at three distributed locations across the room with an optical particle counter (Palas Fidas Frog). To mimic the spread of aerosols carrying COVID-19 virus, NaCl-particles with a count mean diameter of 0.36 µm are generated with a Palas AGK 2000. As a high efficiency air purifier a MANN +HUMMEL OurAir TK 850 was placed in the classroom.

Different scenarios have been investigated: a) what happens in case of a high initial aerosol level? b) What if the aerosol generator is switched on for a certain time? What if pupils are in the room attending a class (no aerosol generator in operation)? Development of particle concentration has been measured in all cases onetime without a filter in use and one time with the air filter on. Results of the study will be presented and discussed.