

# European Network on New Sensing Technologies for Air Pollution Control and Environmental Sustainability - *EuNetAir*

COST Action TD1105

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### ***New Trends and Challenges for Air Quality Control***

**University of Latvia - Faculty of Geography and Earth Sciences**

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## **Effects of Particle Indoor Air Pollution Concerning Smoking Habits**

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# Background and objective

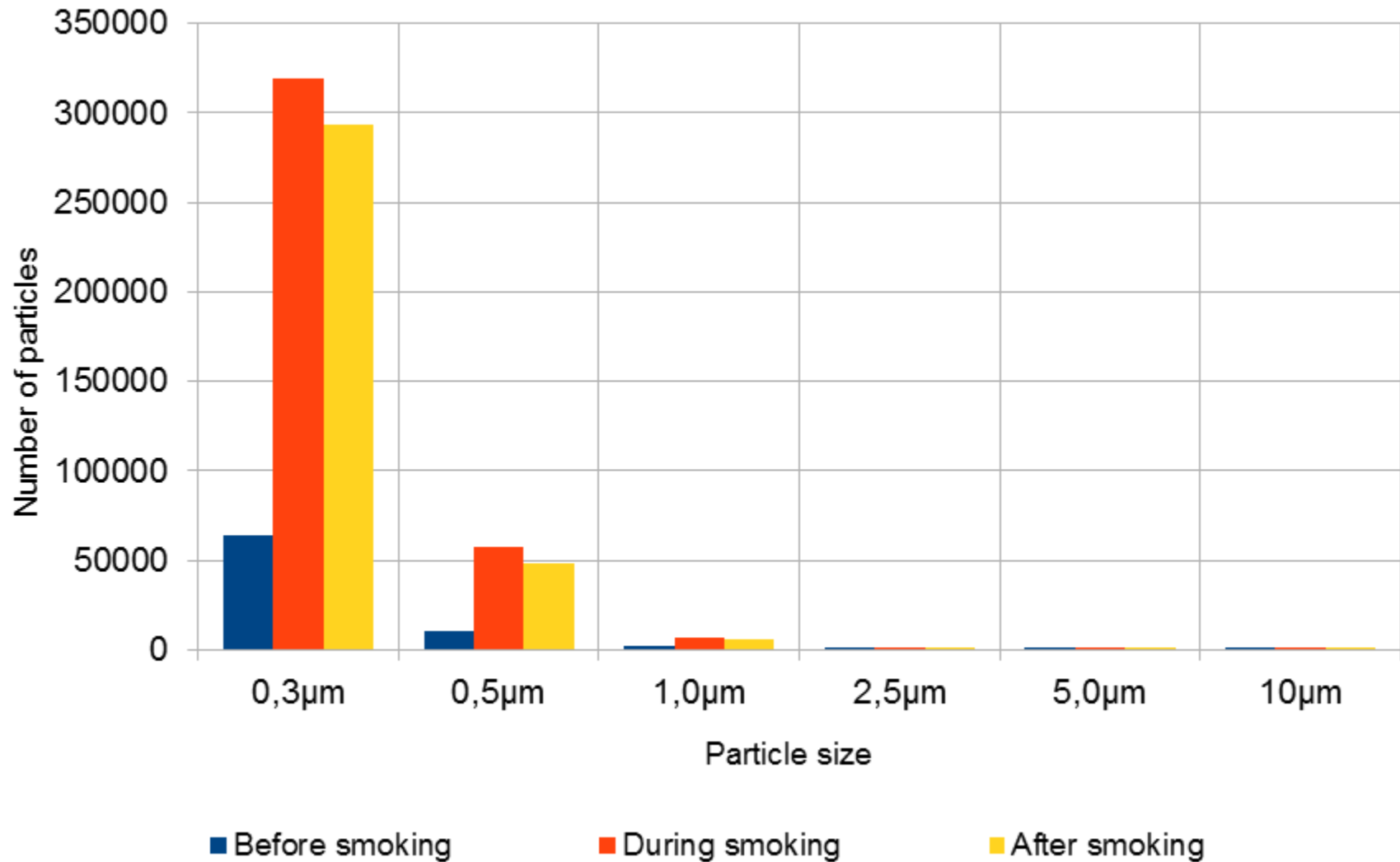
- The aim of the study – identification of aerosol fractional distribution depending on architectural varieties of kitchen, ventilation effectiveness during and after smoking.
- One of the most important risk factors – smoking;
- **During last decade number of smokers not changed, BUT lung cancer cases have strong growing tendency;**
- Increases amount of people, who are having illnesses related with respiratory system;
- **Why indoor?! → some specific particularities (quasistable temperature and relative humidity regime, slow ventilation rate);**
- During tobacco combustion process air is polluted with aerosols, which are able to penetrate in human respiratory system (particularly PM with aerodynamic diameter smaller than  $2.5 \mu\text{m}$ )

# Method

- Mobile Optical Counter CEM DT-9880;
- Particulate matter size channels: 0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns;
- Four main cases within intervals of five minutes;
- Sampling time 21 s



# Results



Comparison between particle size and number measurements before, during and after smoking

# CONCLUSIONS

- Smoking emissions in an indoor environment accumulates in high concentrations for a long time, if there is not sufficiently provided full exchange with outdoor.
- Particle counter method is effective enough to detect harmful effects of smoking indoors, but its accuracy is reduced by complex circumstances, which are depending on different environments/buildings.
- Smoking restrictions in Latvia do not sufficiently decrease the effects of passive smoking. Limitations is more related with outdoor public places, but particular indoor conditions could affect more people, because of limited dispersion of pollutants.

Thank you for your attention!

