

# Nanoparticle Behaviour In Combustion Processes

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## Objectives

- Characterization of nanoparticle behaviour in combustion environments

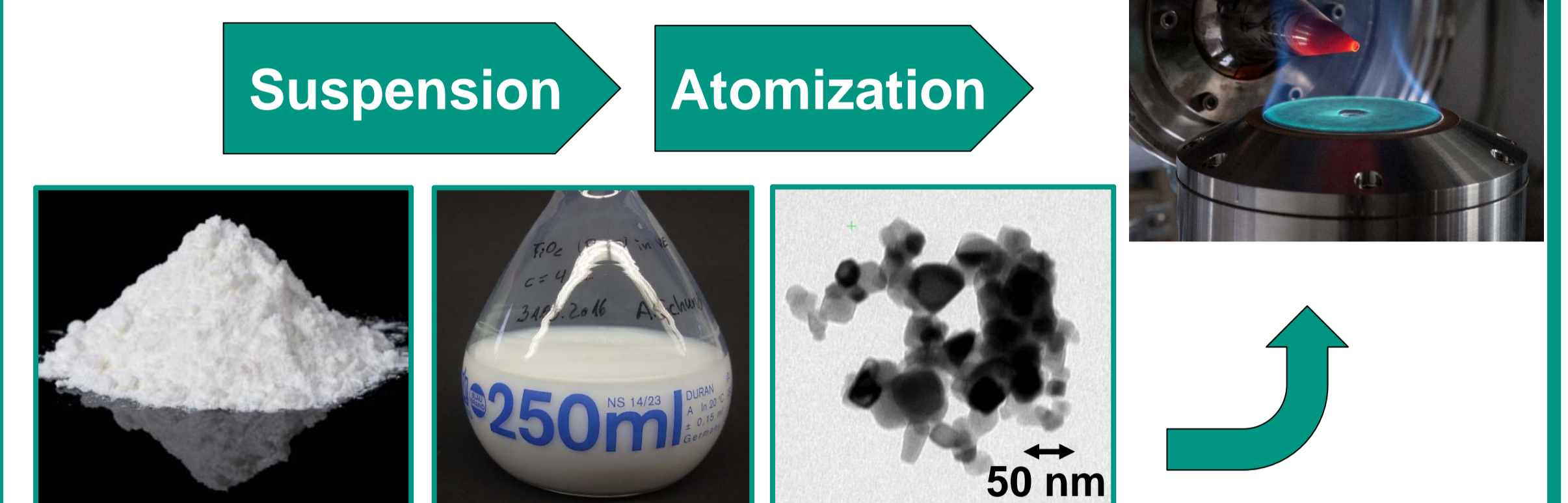
## Challenges

- Implementing a laboratory set up to investigate particle behaviour during combustion
  - Selection of a suitable burner type
  - Selection of a suitable furnace type
- Adaption of measurement techniques to high temperature processes
- Aerosol sampling in high temperature conditions

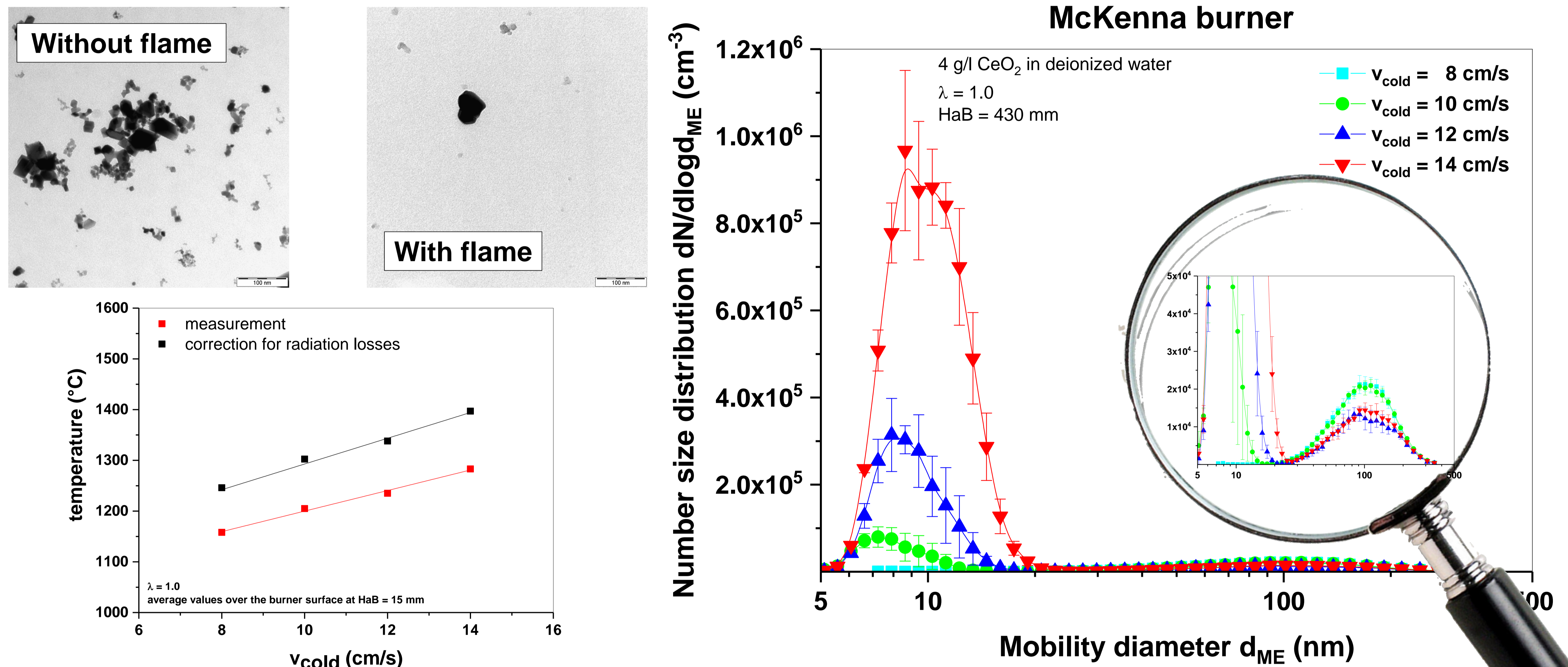
## Laboratory set up

### Measurements:

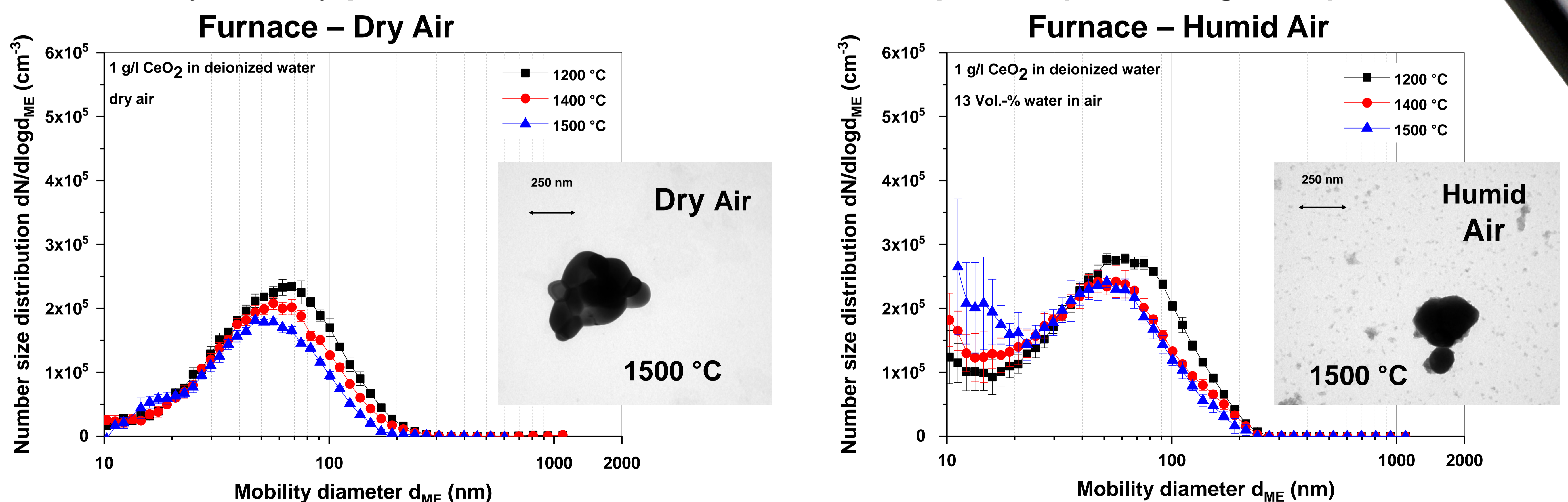
- Electrical Low Pressure Impactor
- Scanning Mobility Particle Sizer
- Transmission Electron Microscopy



## Formation of a new particle peak in dependence of temperature



## Humidity is a key parameter for the formation of a new particle peak at high temperature



## Cooperation



## References

- Yon, J., Ouf, F.-X., Hebert, D., Mitchell, J.B., Teuscher, N., Le Garrec, J.-L., Bescond, A., Baumann, W., Ourdani, D., Bizien, T., and Perez, J. (2018). *Combustion and Flame*, 190, pp. 441–453.
- Teuscher, N., Baumann, W., Hauser, M., Paur, H.-R., and Stapf, D. (2016). *European Aerosol Conference*. Tours, France, September 2016.