

PAmos Particle monitoring system



Fraunhofer Institute for Material and
Beam Technology IWS

Process monitoring and work safety for powder handling and battery production

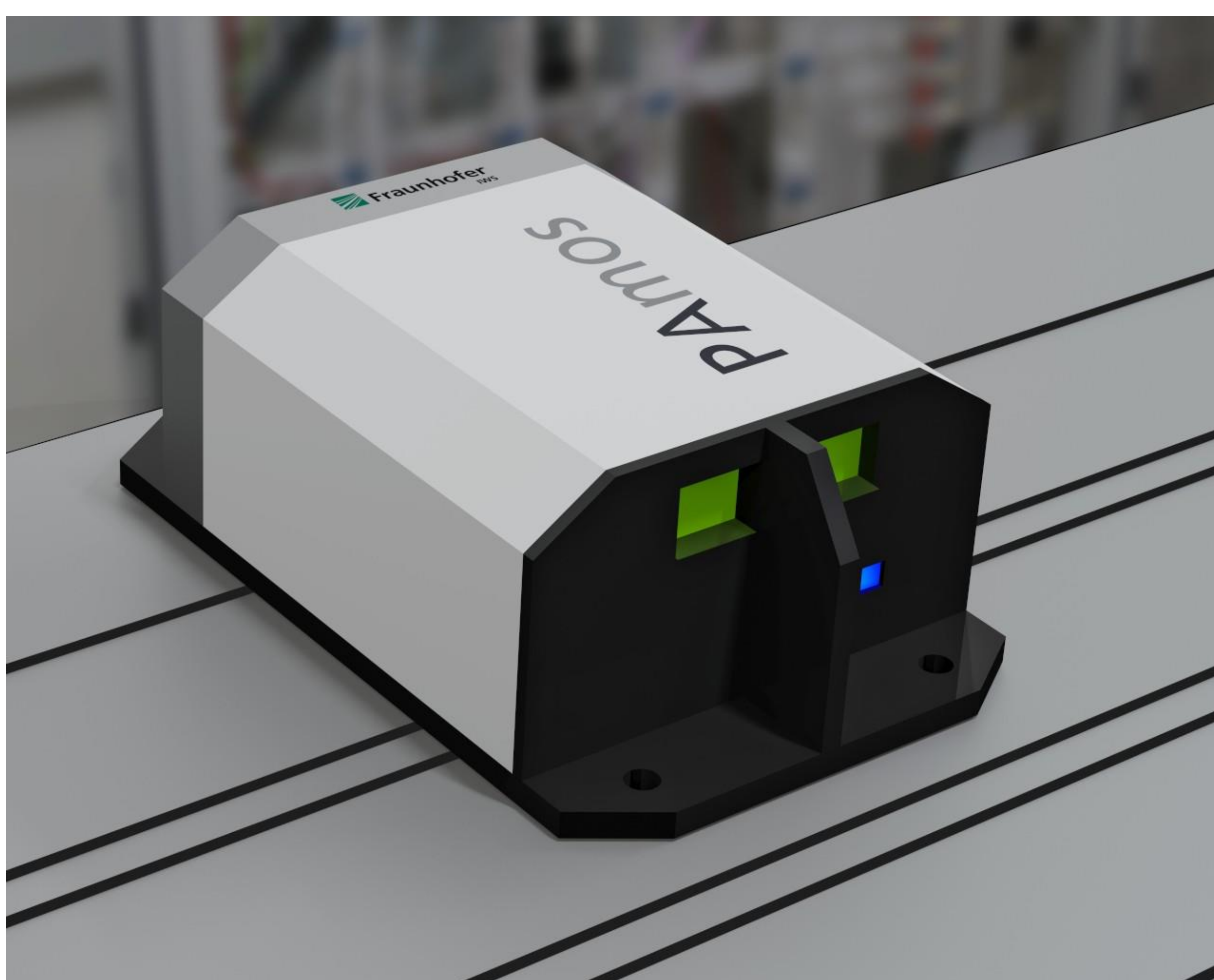
Task

In many processes and experiments, dry powders are handled or particles and dust are generated. Hence, controlling unwanted particle pollution and air quality in work place environments can be critical for work safety and the control of air filtration systems.

This is the case for various processes, e.g. additive manufacturing, coating and ablation processes, welding processes and laser processing. In particular, in battery production and dry coating of electrode materials, where CMR materials like nickel and cobalt are frequently used, there is high work safety relevance.

Solution

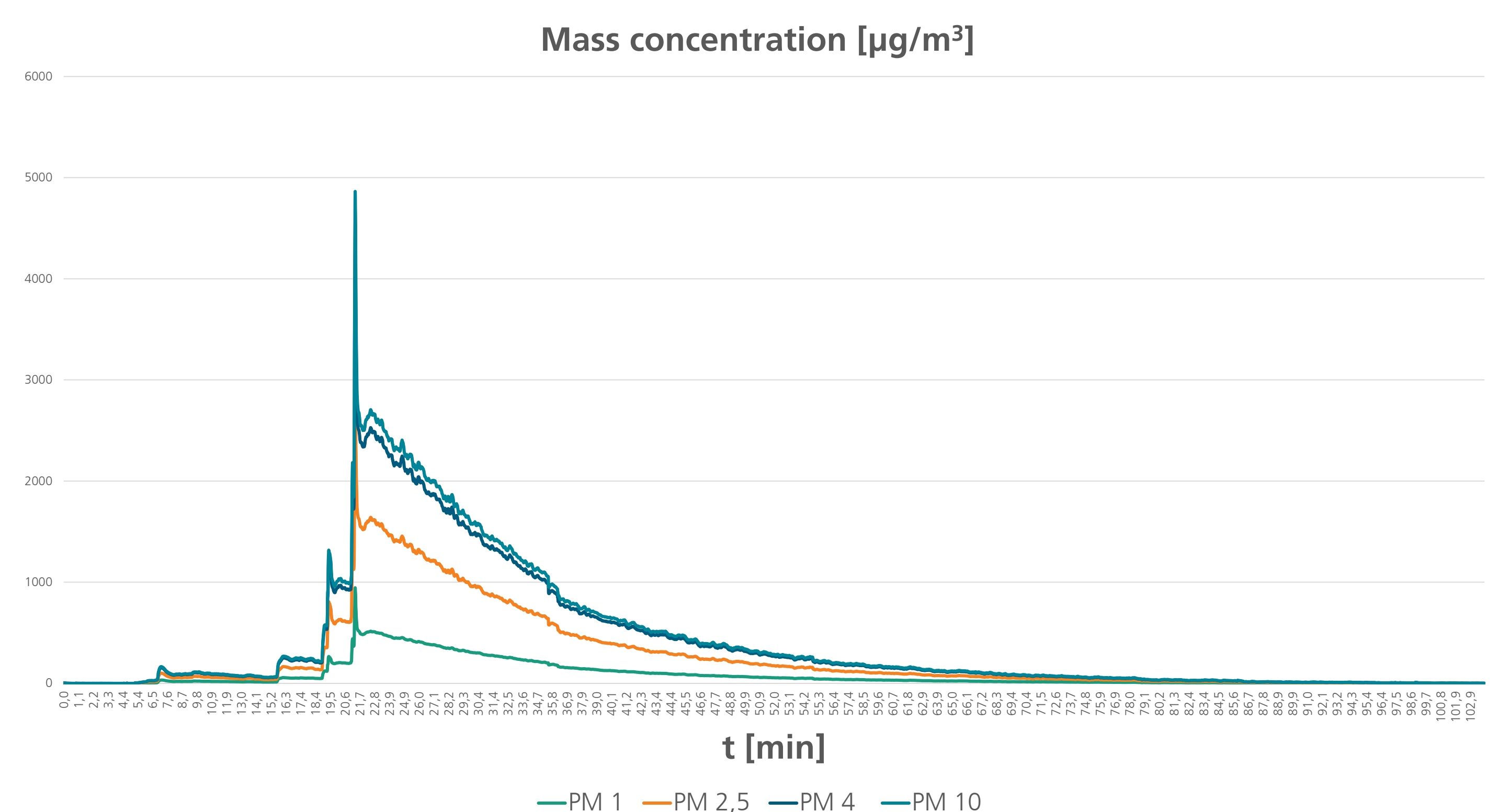
PAmos is a compact device for monitoring particle concentrations and air quality. The particle monitoring system detects fine dust particles in a range from 0 to 10 μm in various classes, measures the usual air values such as temperature, pressure and humidity and additionally has an air quality sensor (AQI) included. The measured values are transmitted wirelessly and the measurement result is conveniently displayed in real time in a browser without additional installation. The data is also saved for later evaluation.



PAmos determines and monitors particulate pollution in technical systems, processes and laboratories

Applications

Due to its compact build and user friendly operation, the PAmos system can be installed in confined spaces like glove boxes or process environments. Also multiple devices can be connected and placed in different spots inside a laboratory or production environment. It is therefore suited for all different kinds of users, from scientific researchers to large manufacturers.



Particle concentrations during handling NMC powders in a glove box

Key parameters and specifications

- Compact housing for integration into technical processes, systems and machine housings
- Measurement of fine dust concentration: PM1.0, PM2.5, PM4 and PM10 ($\mu\text{g}/\text{m}^3$)
- Measurement of number of particles: PM1.0, PM2.5, PM4 and PM10 ($\#/\text{cm}^3$)
- Measurement of air values: temperature, pressure and humidity
- Measurement of indoor air quality (VOC)
- Measured values are transmitted wirelessly in real time
- Live data display via external monitor or PC
- Integrated power supply possible
- Data storage for further processing and evaluation

Contact

Felix Spranger
Gas and Particle Filtration
Tel. +49 12 3456-3289
felix.spranger@fraunhofer.de
Fraunhofer IWS
Winterbergstraße 28
01127 Dresden
www.fraunhofer.de

