Precision and **Vacuum** Technology

PREVAC

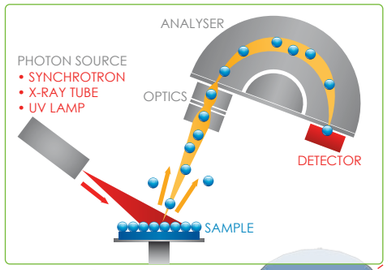
MULTI-TECHNIQUE UHV SYSTEM

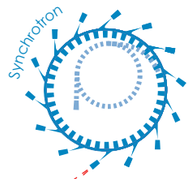
Biggest automated deposition and analytical project in the world installed at the HZB EMIL

www.prevac.eu

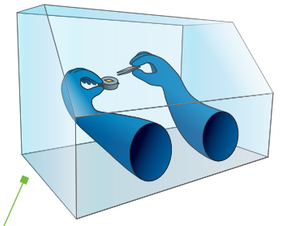
Analysis chamber

PHOTOELECTRON SPECTROSCOPY

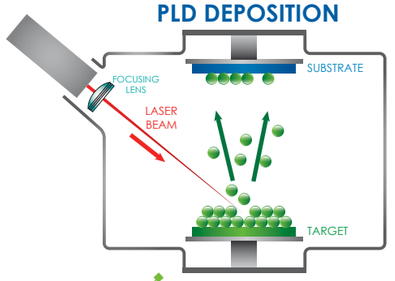




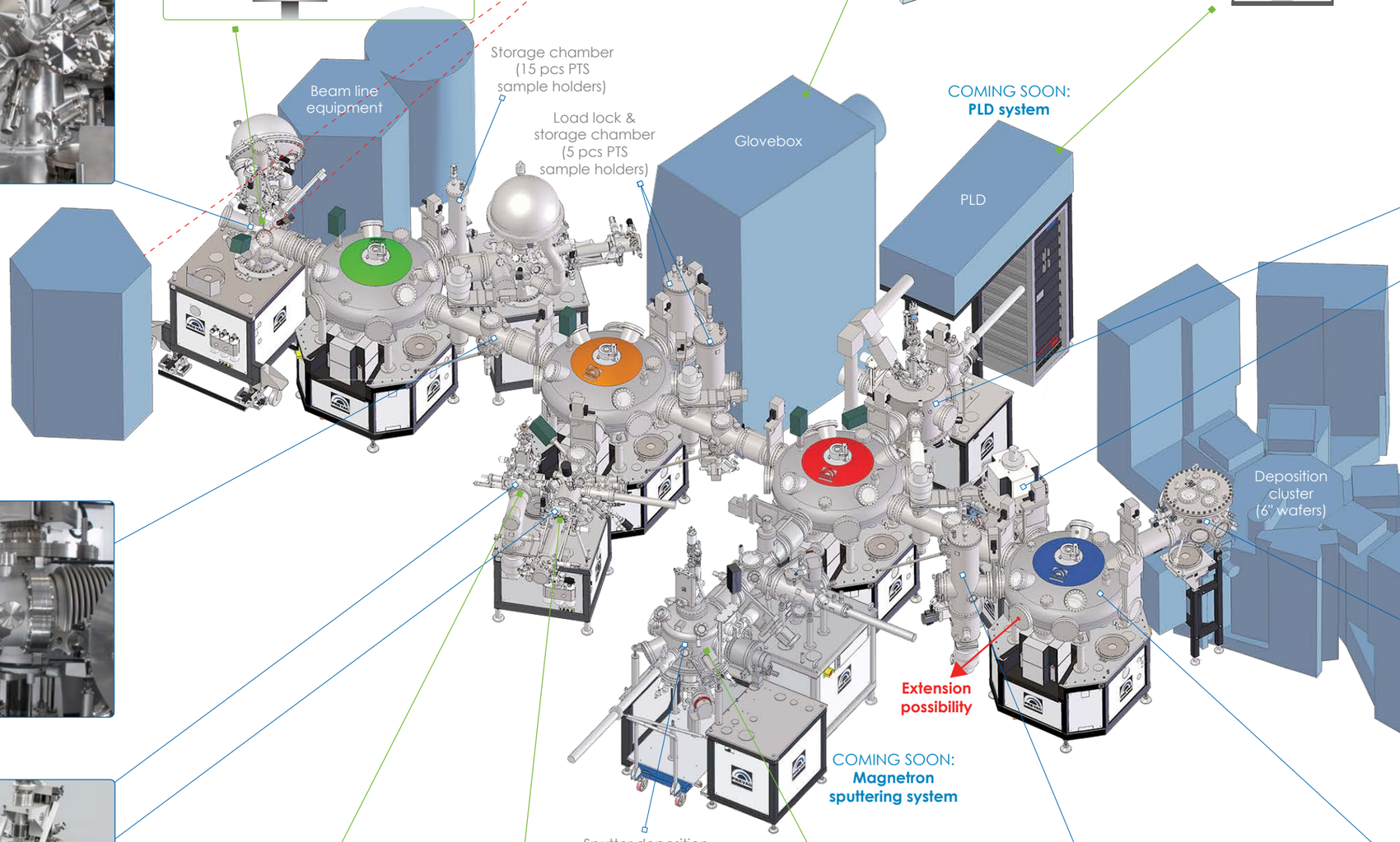
SAMPLE PREPARATION IN GLOVE BOX



PLD DEPOSITION



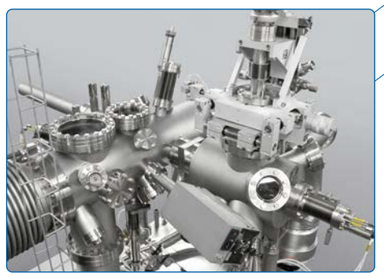
Pulsed laser deposition chamber



Storage chamber (30 pcs PTS sample holders)

Reorientation chamber

Organic / metal materials preparation chambers

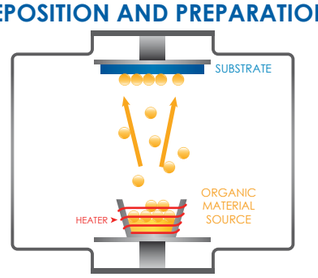


Sample separation chamber

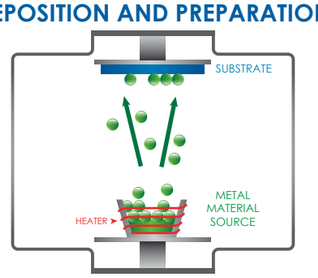
Load lock & storage chamber (10 pcs PTS sample holders)

Radial distribution chamber

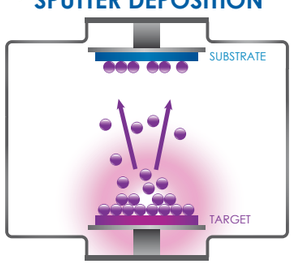
ORGANIC MATERIALS DEPOSITION AND PREPARATION



METAL MATERIALS DEPOSITION AND PREPARATION

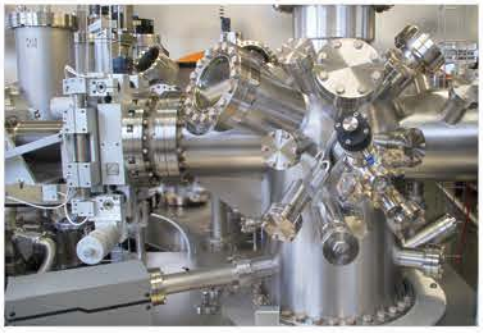


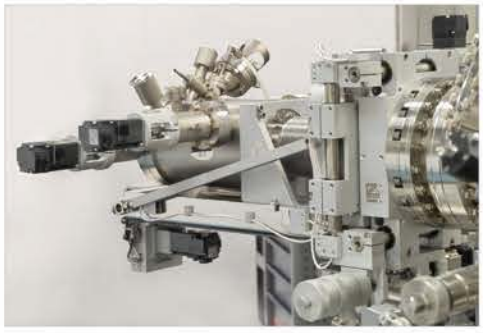
SPUTTER DEPOSITION

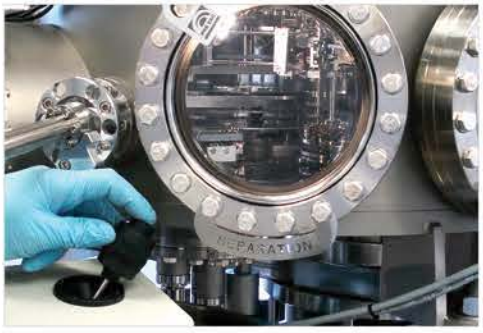


- **Automated** transferring system operated by RAPID SE
- **22 chambers** and among them 4 radial distribution chambers
- Prepared for samples from 10x10mm up to **6 inch**
- Wide range of temperature - from **LN_2 level** up to **1450 °C**
- Pressurre **10^{-10} mbar** during transferring
- Storage for **65 sample holders**

Manipulation and transferring system is **fully software controlled and automated** using PREVAC's electronics and dedicated software which have been developed in-house based on the latest innovation solutions combined with our unique vacuum experience.







Customized multichamber UHV system (EMIL) for transfer between the silicon thin film deposition cluster, the SISSY@EMIL end-station and other analysis tools, load-lock and storage chambers located along the sample transfer system and the radial distribution chamber. The silicon thin film deposition cluster is connected to the SISSY@EMIL end-station via the handler transfer chamber, the sample separation chamber, a modular ultra-high vacuum sample transfer system and a radial distribution chamber.

The EMIL multichamber system is focuses on materials research for a sustainable, economic and secure energy supply in the future. EMIL is dedicated to the state-of-the-art synthesis and in-situ and in-operando X-ray analysis of materials and devices for energy conversion, energy storage, and energy efficiency. Work at EMIL will cover the range from basic and applied material science over technology and prototype development to industrial research. Research at EMIL will cover a broad range of energy-related topics including photovoltaics (PV), solar fuels, bio-mass to liquid fuels, thermoelectric materials, electrode materials for batteries, hydrogen storage, energy saving catalysts for the chemical industry for processes such as ammonia production, and new fields will develop as external users and industry will perform their research at EMIL.

EMIL combines a large variety of synthesis and deposition techniques for various material classes with sophisticated synchrotron-based analytics which can probe thin-layer and interface properties with both lateral and in-depth resolution on the nanometer scale. The promising approach is the coupling of different synchrotron-based X-ray characterization techniques with relevant deposition and post-treatment capabilities in one dedicated vacuum system.

EMIL is designed such that it can serve up to three experimental end-stations that each can simultaneously access soft and hard X-rays in the very wide energy range of 80 eV – 10 keV, and comprises all characterization and deposition facilities in one integrated ultra-high vacuum system. In addition, a PINK beam end station is planned to enable a high flux source of 2^{-10} keV photons for dispersive X-ray emission spectroscopy (XES).

EMIL SYSTEM

PREVAC

If you need any further information, please do not hesitate to contact our sales department

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