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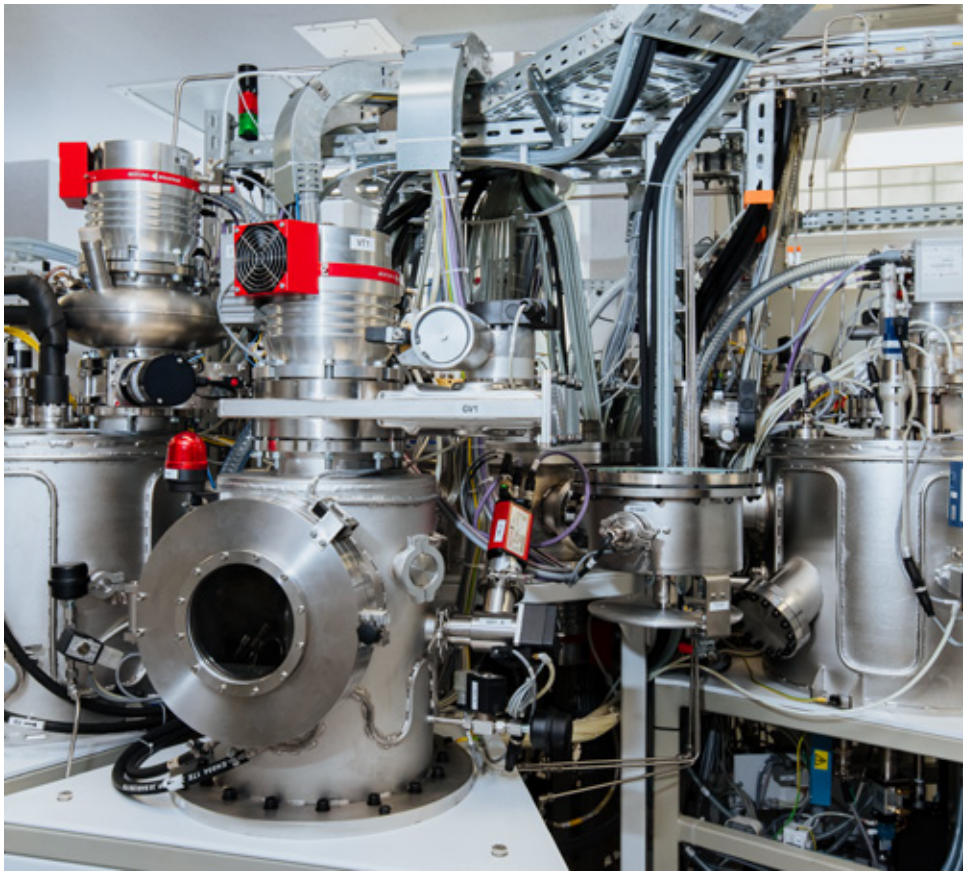
Vacuum Deposition of Thin Films

Multifunctional cluster tool and expertise in vacuum deposition of thin films for inorganic and organic materials



Cluster tool

Our custom-made cluster tool can be used for research and development works, feasibility studies and general academic work in the field of thin film technologies. Sample manufacturing aimed at product prototyping form market evaluation of out-of-box technologies.

Flexibility

Each chamber can operate independently due to individual pumping, control and utility flange. All chambers can operate simultaneously. Several different deposition processes available

Features

- Residual Gas Analysis / Mass Spectrometry
- Plasma Emission monitoring & control
- Glove box
- System monitoring

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MAGNETRON SPUTTERING

For metal, alloy, oxide, transparent conductive oxides, electrochromic, thermochromic, nitride, carbide, polymer, semi-conductor and P-I-N thin films

LOW TEMPERATURE EVAPORATION

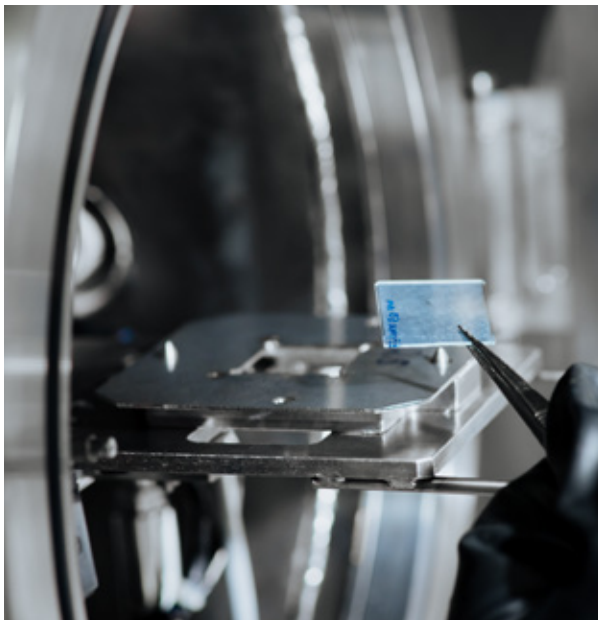
For organic thin films and prototyping of OLEDs, organic photovoltaics and organic electronics

HIGHT TEMPERATURE EVAPORATION

For metals and inorganic materials

E-BEAM EVAPORATION

For fast deposition and high thickness films

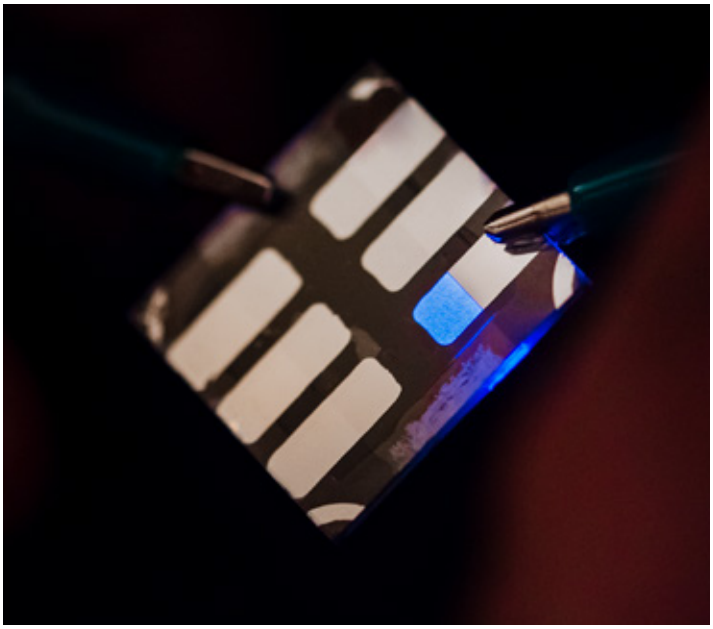


Options

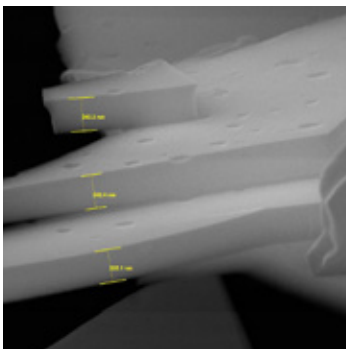
- Various substrates (metal, glass, plastic, ceramic) with standard size 50x50x5mm
- Ion pretreatment
- Contact and contactless heating and cooling
- Multi-layer stacks without venting
- Uniform due to substrate rotation
- Thickness measurement
- Base pressure 10^{-7} mbar
- Substrate storage in vacuum

Application examples

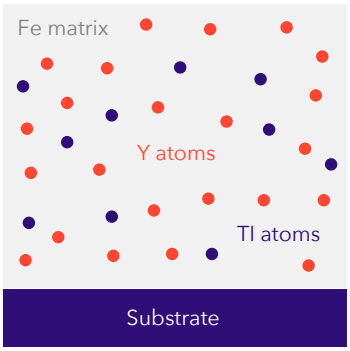
ISSP can fabricate experimental devices (e.g. organic light emitting diode). We work with original materials as well as commercially available materials.



Scientific achievements



We have performed research on potential p-type transparent conductive oxide: x-ray amorphous system ZnO:x·IrO2 (x ≥ 1.3)



We have prepared Fe-Y-Ti thin film model systems by magnetron sputtering to understand mechanism and dynamics of Y and Ti oxide nanoparticles formation in Fe and ODS steels.