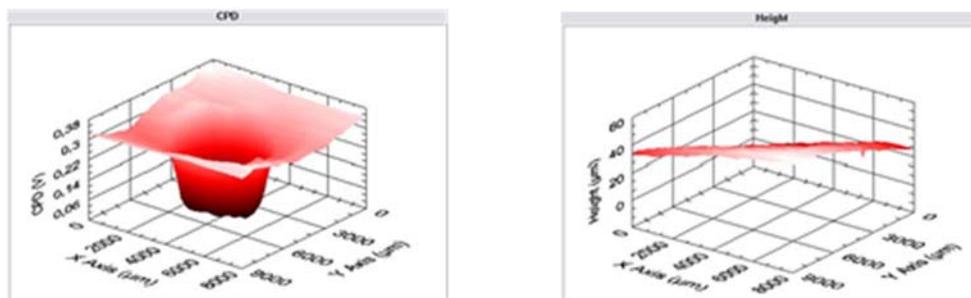


Kelvin probe

The Kelvin probe works with a non-destructive, contactless measuring principle and serves for the local determination of the contact potential difference between the vibrating measuring tip and the sample (in most cases metallic). The contact potential difference is based on the different work functions of the two metals or, in the case of non-metallic samples, on the surface potential. As a surface-sensitive method, the Kelvin probe reacts to adsorption process and to changes in the redox state, which is why it is an interesting method for many applications.



SKP surface scan of a steel sample loaded with hydrogen: left: measured contact potential difference (CPD), right: topography from automatic height correction

Applications:

- Materials Analysis
- Quality control
- Process Development
- corrosion analysis (atmospheric corrosion, hydrogen)
- coatings (delamination processes)
- thin films
- Semiconductors (surface photovoltage)
- solar cells
- In situ measurements (during electrochemical treatment)

Sample Requirements:

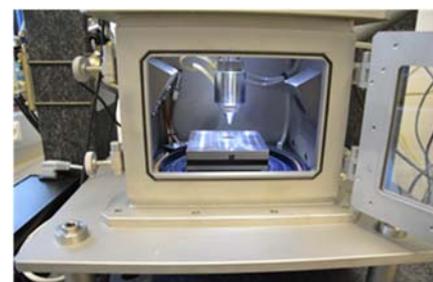
- Solid samples
- Possibly also liquid solutions in metallic containers with sufficient conductivity
- Size up to 10 x 10 cm
- Height up to 3 cm

Application:

- Surface analysis - structure, composition, defects, adsorption, ...
- Observation of corrosion processes
- Characterization of organic and metallic coatings, thin films, semiconductors and solar cells
- Influence of humidity and oxygen concentration

Specifications:

- Scanning Kelvin Probe (SKP) with motorized x, y, z positioning stage
- Lateral resolution depending on the used measuring tip (CrNi alloy) between 40 and 300 µm
- Maximum scan width in x and y direction each 9 cm
- Topographic information through automatic height control
- Programmable point, line and area scans
- Air conditioning of the measuring chamber with the possibility of adjusting the humidity and the oxygen content (0 to 100% in nitrogen)
- Monitoring of temperature, humidity and oxygen concentration in the measuring chamber



**CEST Kompetenzzentrum
für
elektrochemische
Oberflächentechnologie
GmbH**

Viktor-Kaplan-Str. 2
2700 Wiener Neustadt
Tel: +43/2622/22266-0
Fax: +43/2622/22266-50
Email: office@cest.at
www.cest.at