

Wie Wasserstoff Materialien herausfordert – und wie wir das künftig besser messen können

Wie beeinflusst Wasserstoff moderne Hochleistungswerkstoffe – und wie lässt sich das besser messen?

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voestalpine
ONE STEP AHEAD.



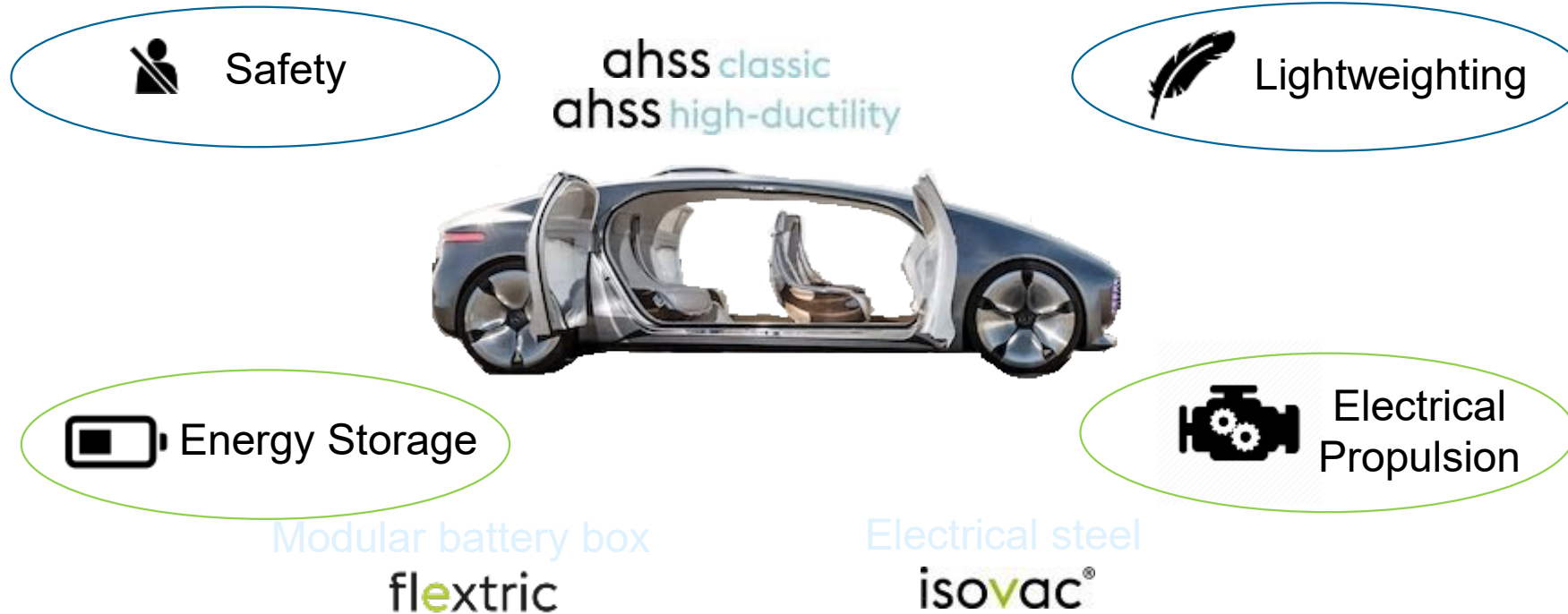
Understanding and tailoring surface and interface processes to enable tailored complex interfaces and defect engineering at the industrial scale.



INNOVATION HIGHLIGHTS FOR SUSTAINABLE AUTOMOTIVES

STEELS FOR SUSTAINABLE AUTOMOTIVE USE

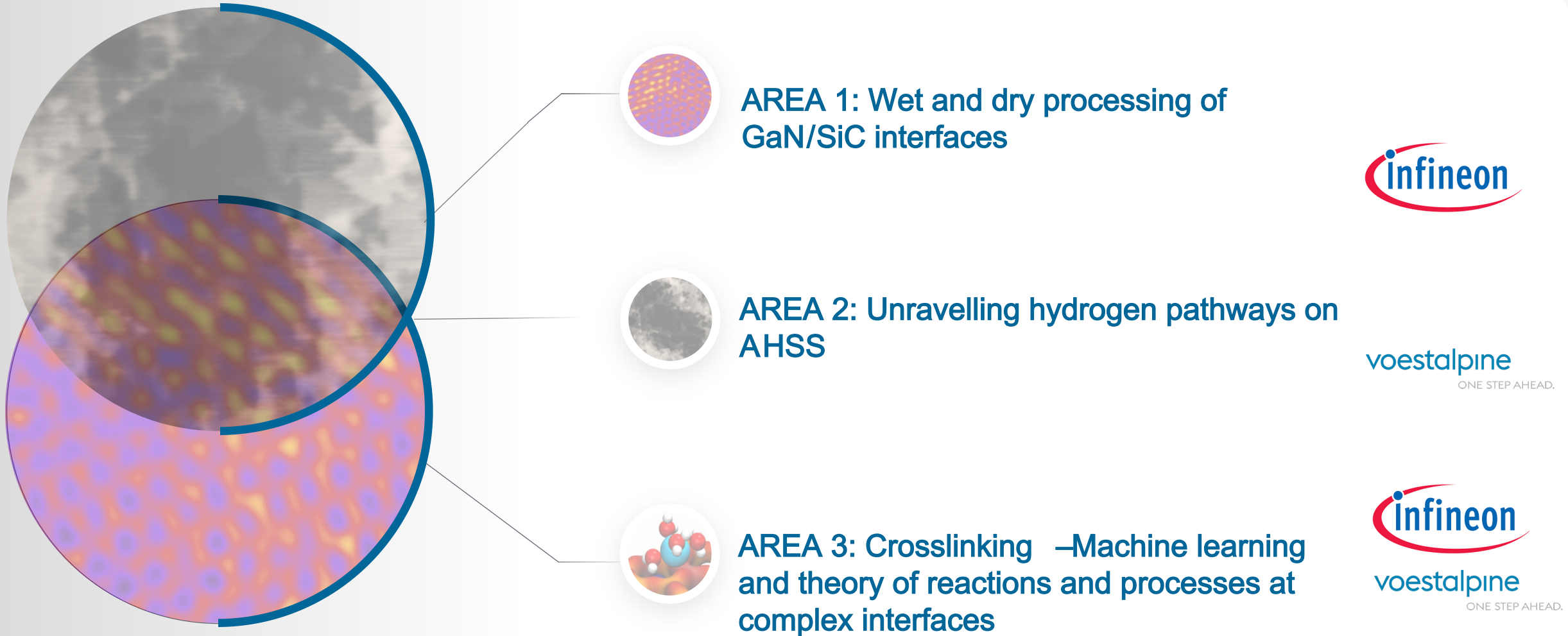
Advanced high-strength steels (ahhs)



ahhs: Neigen unter bestimmten Umständen zu Wasserstoffversprödung

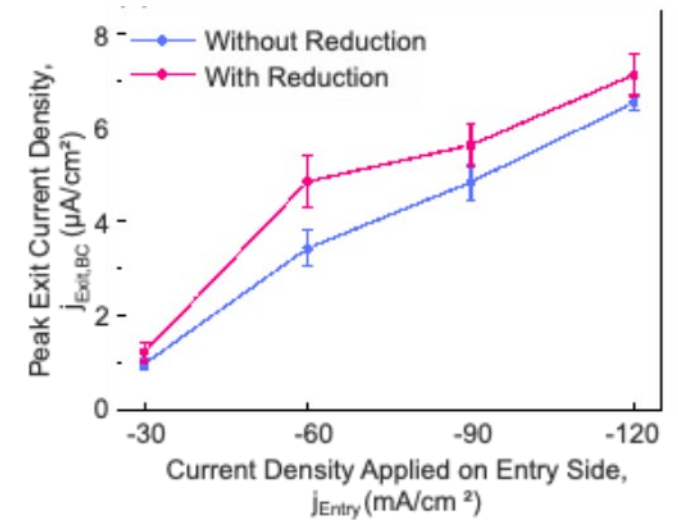
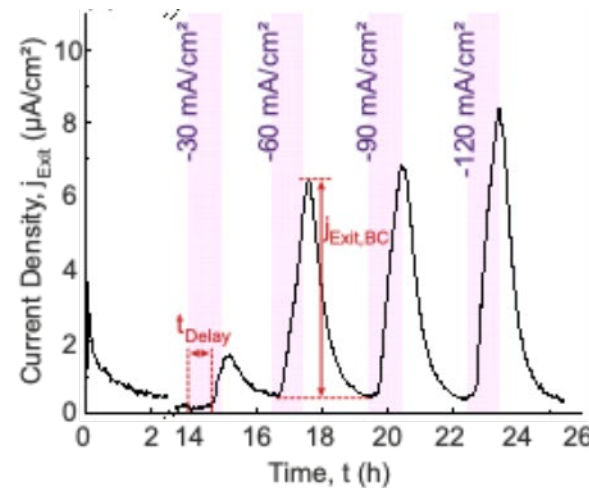
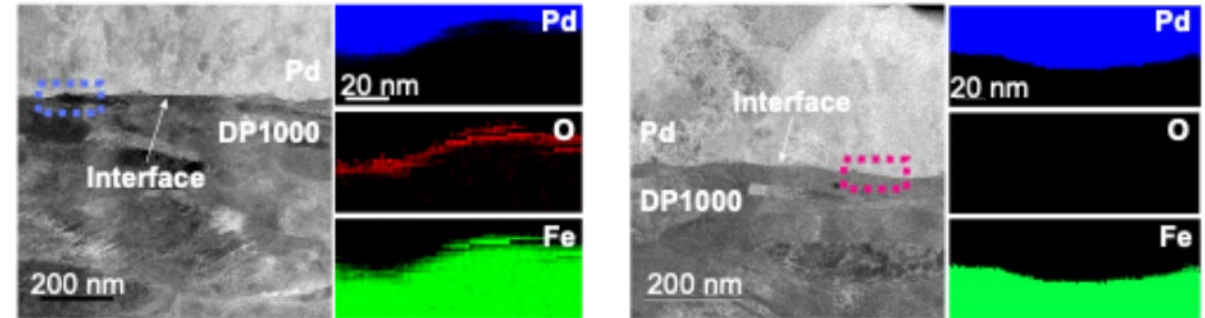
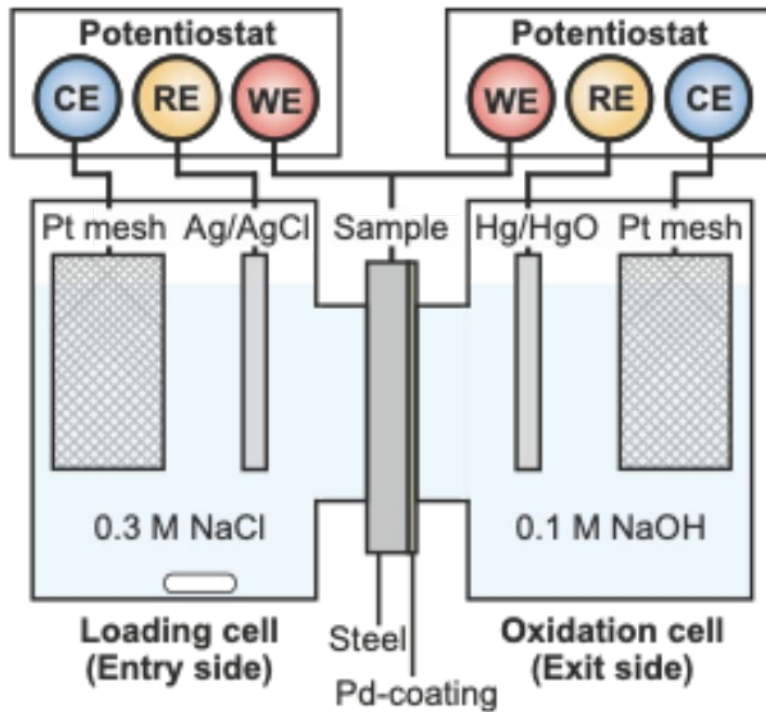
STRATEGY AND FOCUS AREAS

In diesem CDL, dass drei Bereiche abdeckt, geht es um grundlegende und industrielle Fortschritte bei der experimentellen und theoretischen Untersuchung komplexer Grenzflächenstrukturen und -prozesse

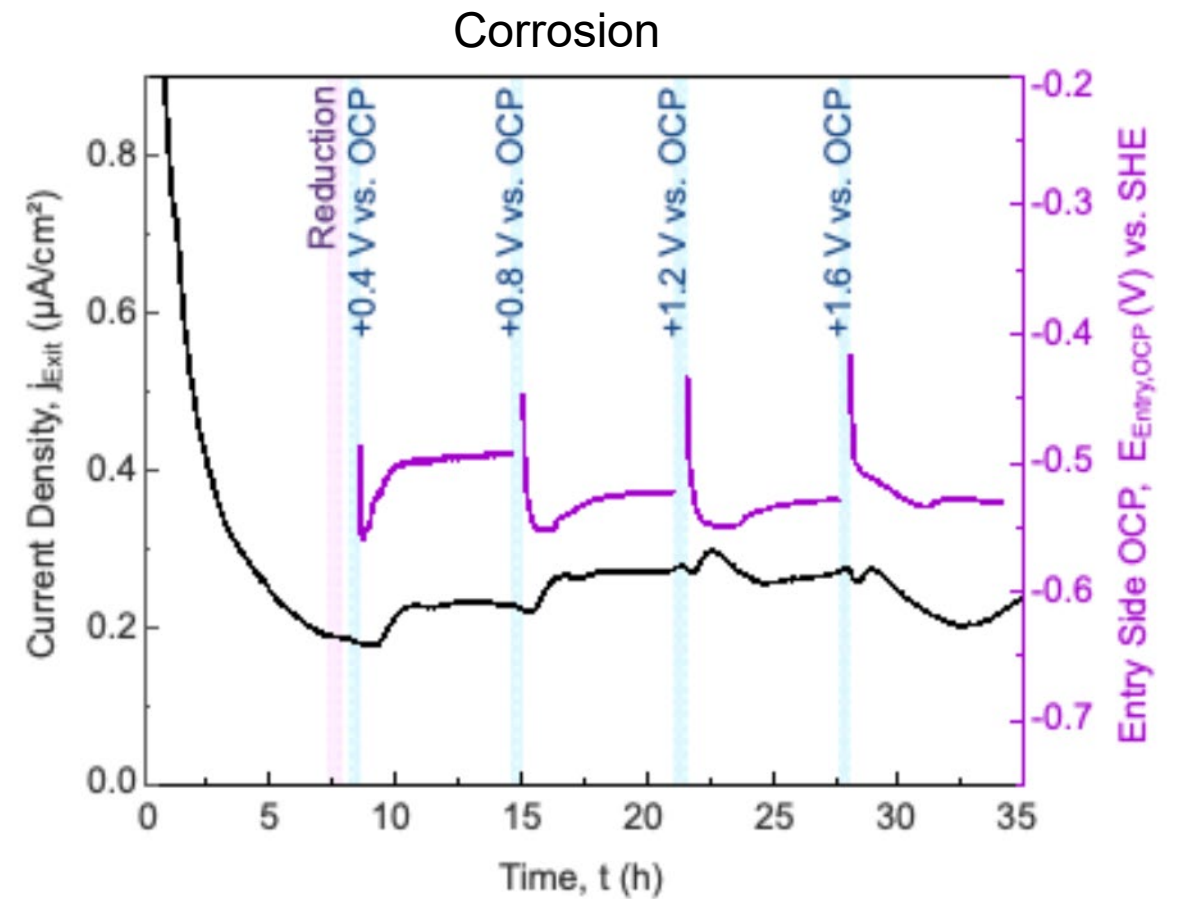
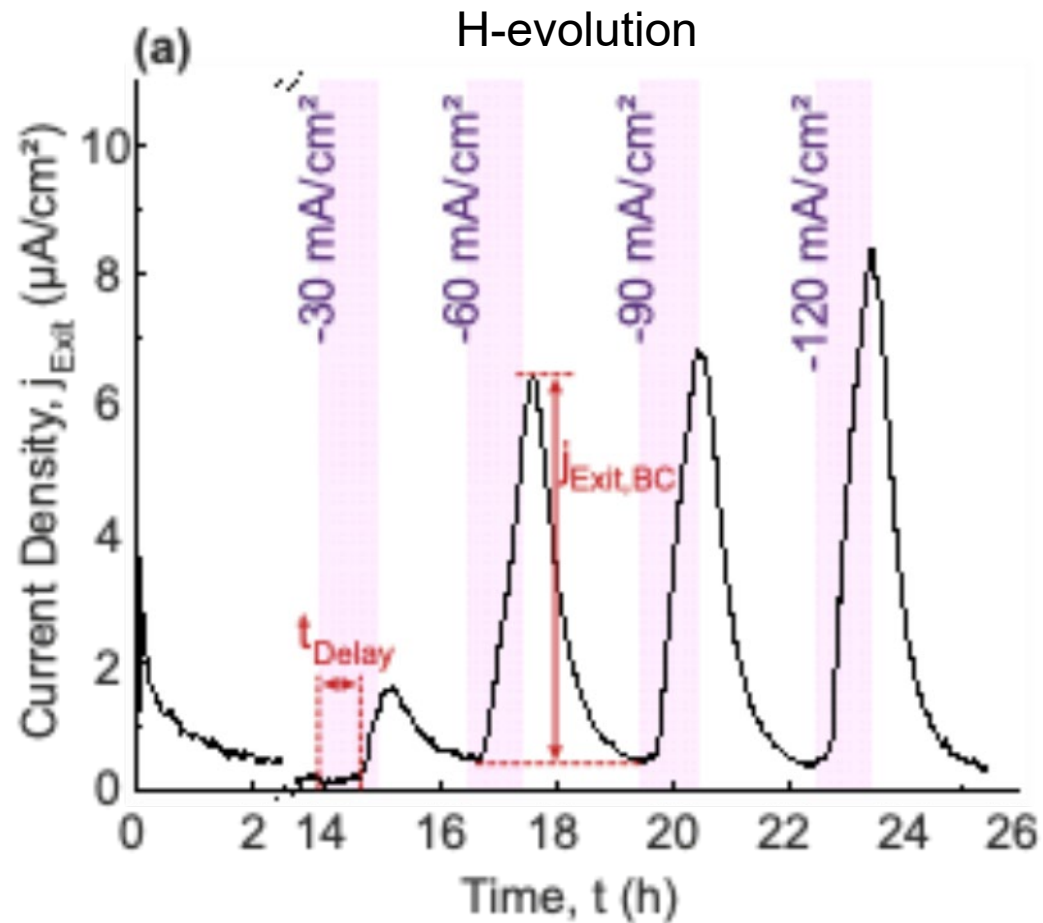


H-Messung: Devanathan-Starchurski Permeationszellen

Every interface matters

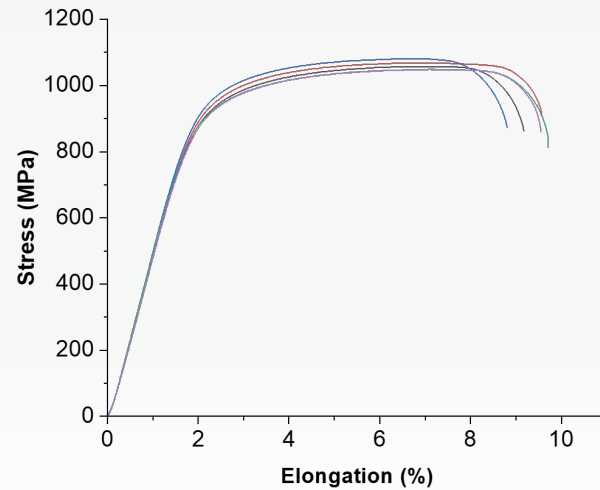


H-permeation during corrosion



Understanding of hydrogen pathways under strain

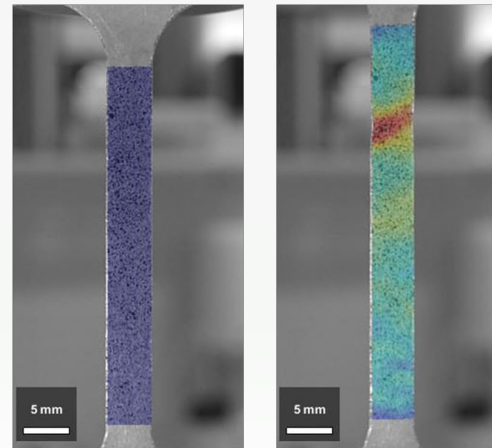
Tensile Machine



mechanical
properties

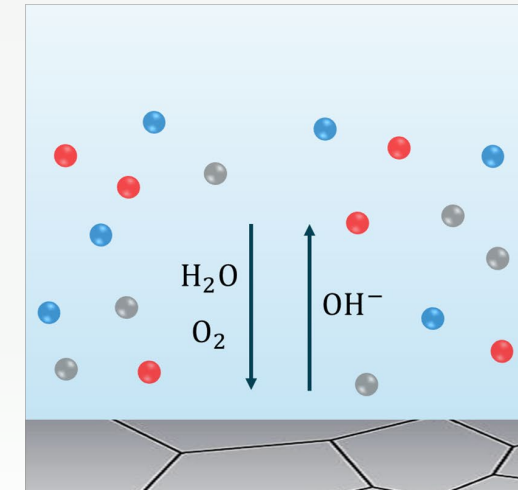
DIC

Digital Image Correlation



strain analysis

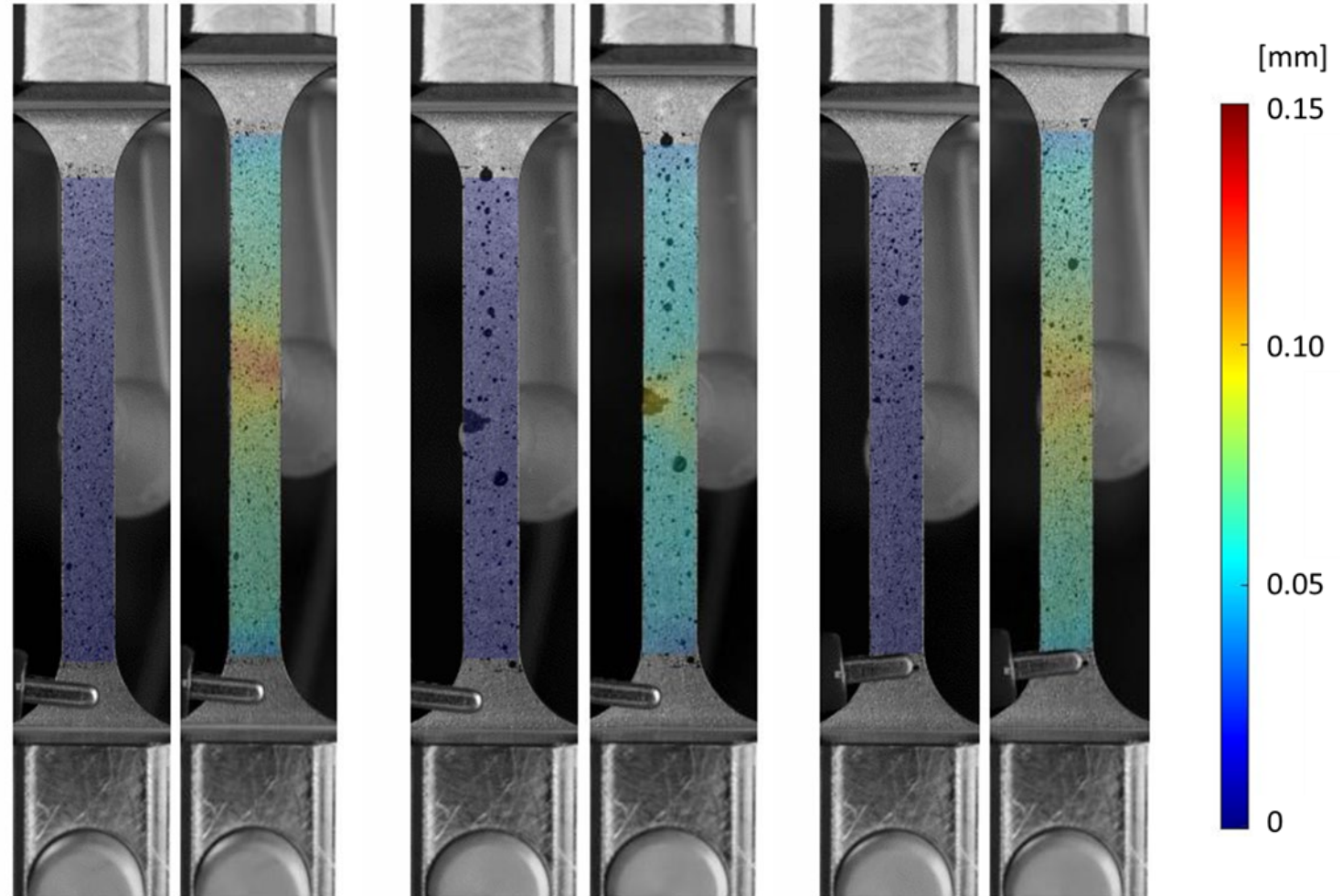
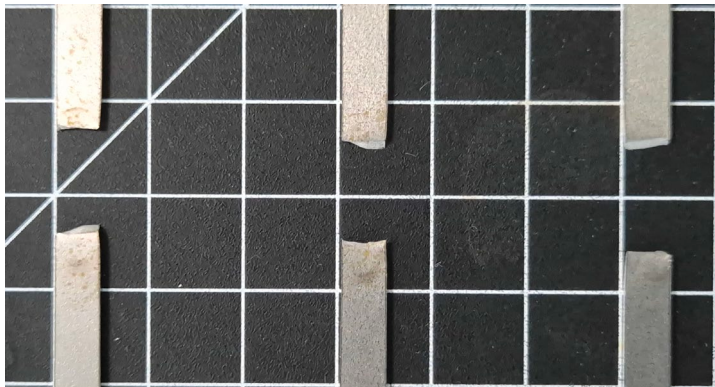
Potentiostat



electrochemical
properties

Hydrogen effect during tensile testing

- Strain now localized in a single area (H entry region)
- Strain reduced compared to other samples





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Highest precision detection of hydrogen under relevant conditions enables assessment and design of interfaces that limit H effects with broad application to other materials

