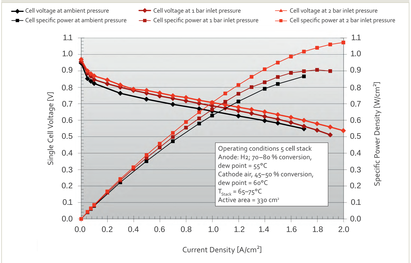
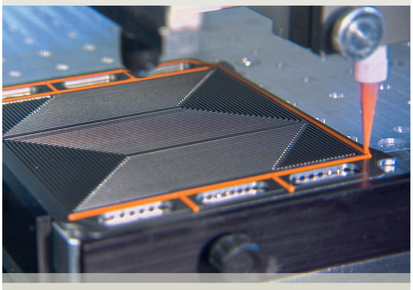
// Fuel Cell Characterization, Optimization & Technologies



// Automotive stack platform development

// X ray tomography (µ-CT)



// Sealing and adhesion technology

// Characterizing and Optimizing Fuel Cells and Components

- Bipolar plates, flowfields, gas diffusion layers (GDLs), membrane electrode assemblies (MEAs)
- Set up and optimization of cell and stack designs
- CFD Modeling of cell design and flow field
- Simulation of water inventory (MC method)
- Characterization of hydrophobicity, surface energy and pore structure of components
- Investigation of ageing processes
- Characterization of mechanical, electrical and durability parameters

// Visualization of Water Distribution

- Synchrotron tomography
  - Visualization during real operation
  - Analysis of 3D water distribution with up to 3 µm resolution
- Neutron radiography
  - Visualization of water removal in flowfield channels
  - Measurements of fuel cell stacks up to 400 cm² cell area

// Technologies and Manufacturing Techniques

- CAD design, SEM analysis, assembly and acceptance testing
- Power range from 50 W_{el} to 100 kW_{el}
- Sealing and adhesion technology
- Investigation of manufacturing techniques
- Robot based stack assembly
- Durability testing (continuous operation for 20,000 hours)
- Experience with more than 700 Stacks

// Contact
Dr. Joachim Scholta
+49 (0)731 95 30-206
joachim.scholta@zsw-bw.de

// Energy with a future
Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg
www.zsw-bw.de