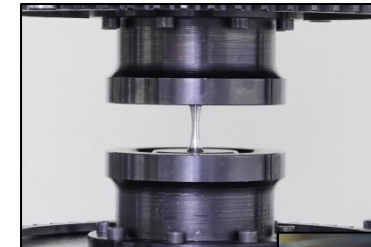
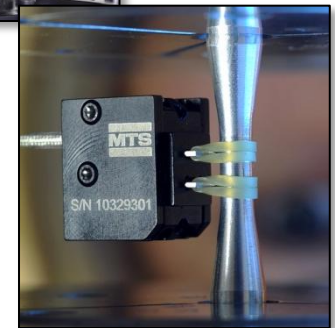


## NMP 16 – 2015: Extended in-service life of advanced functional materials in energy technologies (capture, conversion, storage and/or transmission of energy)

- High cycle fatigue experiments (at room temperature and up to 250 °C) in a RUMUL resonant testing machine
- Strain-controlled low cycle fatigue experiments (at room temperature and up to 600 °C) in a MTS servohydraulic testing machine
- quasi-static uniaxial tensile and compression tests of the material (prior to and after fatigue loading)
- adaption and validation of empirical and constitutive material models for long-term degradation



HCF test at  
room temperature



strain-controlled LCF test

### References:

- [1] K. Hockauf, T. Halle, M. Hockauf, M. F.-X. Wagner, T. Lampke, “Near-Threshold Fatigue Crack Propagation in an ECAP-Processed Ultrafine-Grained Aluminium Alloy”, *Mater Sci Forum*, Vol. 667-669 , **2011**, p. 873-878, <http://www.scientific.net/MSF.667-669.873>
- [2] K. Hockauf, L. Köhler, M. Händel, T. Halle, D. Nickel, G. Alisch, T. Lampke, “The effect of anodic oxide coating on the fatigue behaviour of AA6082 with an ultrafine-grained microstructure”, *Materialwiss Werkstofftech*, Vol. 42(7), **2011**, p. 624-631, <http://dx.doi.org/10.1002/mawe.201100837>

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