

Poster-Session

Tailoring the coatings microstructure for efficient hydrogen barriers

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Fulfilling hydrogen readiness for products in high pressure hydrogen environments is a challenging task. Many materials currently do not meet the required damage tolerance. Problems arise due to e.g. hydrogen embrittlement, hydrogen induced delamination, etc. Hence, products such as sensors, valves, compressors, etc. must be protected against hydrogen diffusion to achieve a sufficient service life.

At the Fraunhofer IWM, hydrogen barrier coatings are developed and tested. Their performance is correlated with the microstructure of the deposited layers. For this purpose, different deposition techniques (PVD, PE-CVD, Arc, HiPims etc.) are investigated to adjust e. g. grain size and orientation. For a more systematic approach, a joint research project is currently set up.