Development and applicaion of localized techniques (3D SVET) for corrosion study.

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The Scanning Vibrating Electrode Technique has been applied to corrosion research for few decades and proved its relevance especially in specific localized corrosion research on carefully designed model-electrode situations. However, due to the technical restrictions several limitations to the sample conditions have to be taken into account, especially the sample size and topography, as the ionic currents under observation are rapidly dependent on the probe to surface distance.
New technical approach of combining the scanning confocal microscopy and 3D resolved SVET will be presented. Several topographically complicated and demanding model electrode systems were explored and the approach of localized electrochemical technics will be discussed and evaluated.
The Different Al alloys (such as aeronautically relevant AA2024 and modern Al-Li alloy AA2198) are given as studied examples for estimation of corrosion localization and it's influence. Also, the different technologically relevant galvanic situations like CFRP + Al alloys or Ti + Al are considered in respect of design of dedicated corrosion inhibiting systems and its relevance of application of new approaches of SVET technique.

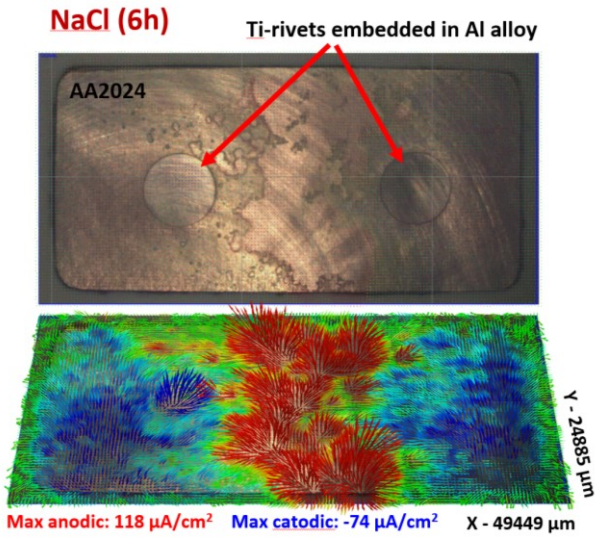

Figure 1. Photograph and 3D SVET map of AA2024 sample with two embedded Ti rivets immersed in 0.05M NaCl for 6h. Localized distribution of galvanic corrosion activities are exposed.

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