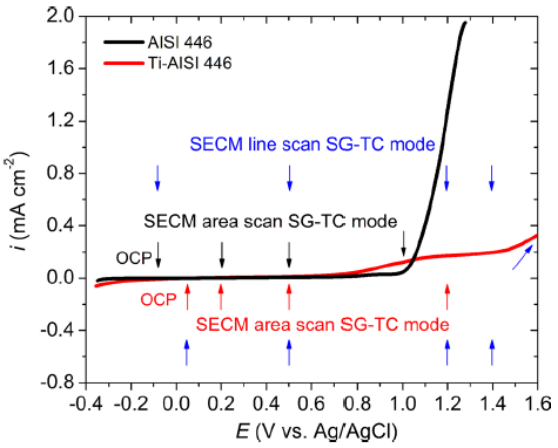
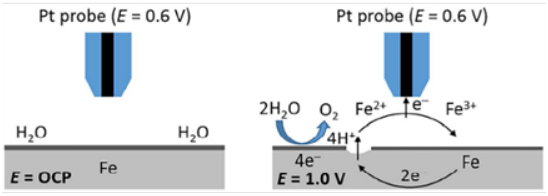
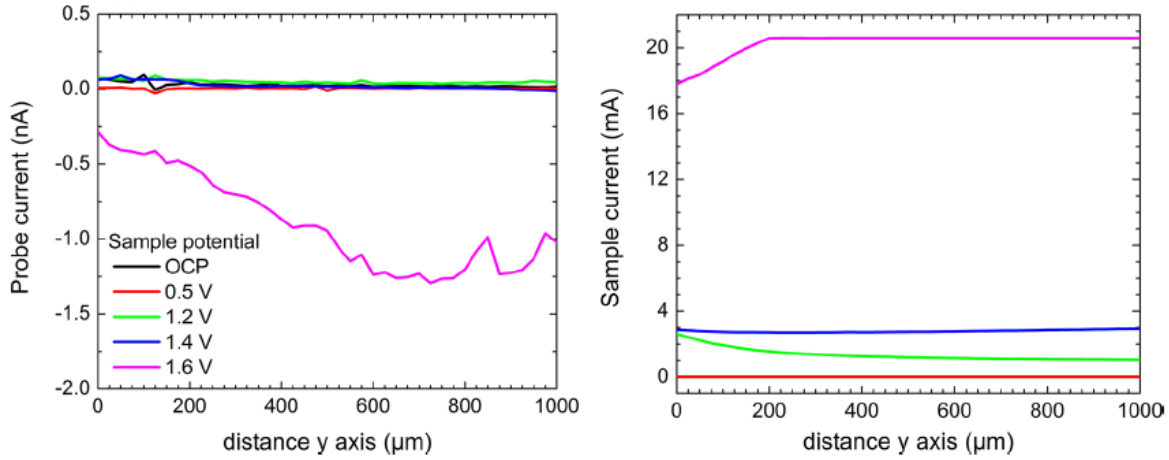
Results 2023

Further analysis was made using a scanning electrochemical microscopy (SECM) of the ferritic stainless steel substrate (AISI446) and to extend the SECM measurements on Ti coated AISI446. The results were published in Acta Metallurgica SINICA January 2024 (http://link.springer.com/journal/40195).

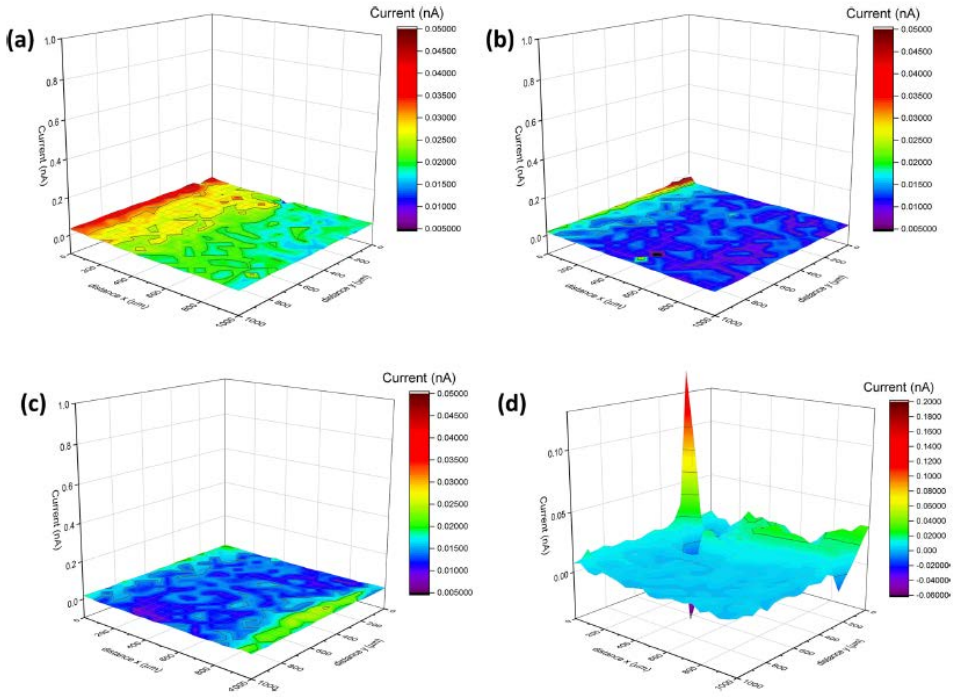




The SECM measurements were performed using a Uniscan Instruments M370 scanning electrochemical workstation, samples made from AISI 446 and Ti coated AISI 446, in various testing solutions (0.1 M Na_2SO_4 and 0.1 M KCl). The figure to the right shows the polarization curves of AISI 446 and Ti-coated AISI 446 in 0.1 M Na2SO4 and overview of potentials selected for SECM measurements. To the right is Schematic representation of reaction model for AISI 446 during SG-TC mode.



The SECM line scans from the same publication of Ti-coated AISI 446 obtained at 20 µm substrate distance at different potentials of the substrate are shown here, where the probe current is to the left and and sample current to the right.



Above are the SCEM area scans of uncoated AISI 446 with tip biased at E=0,6 and the AISI 446 substrate at **a** OCP, **b** 0.2 V vs. Ag/AgCl, **c** 0.5 V vs. Ag/AgCl and **d** 1.0 V vs. Ag/AgCl. Conditions: substrate tip distance is 20 µm, scan velocity 50 µm/s, step size 50 µm. Substrate generation–tip collection mode

In January 2023 the partners were finally able to meet again after Covid. The project meeting was held in Timisoara January 2023. A workshop called " *Renewable energy – Hydrogen challenges*" was organized in Politehnica University Timisoara on the occasion of the visit of the partners from SINTEF.

A researchers' night was also organized at Politehnica University Timisoara. Below you can see professor Craciunescu showing the laboratories to participants.