OSCARS
Open Science Clusters' Action for Research & Society

Funded Project

OpenCorrAM - Open Corrosion Data for Additively Manufactured Alloy

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Implemented by

VRIJE UNIVERSITEIT BRUSSEL

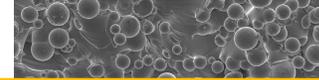UNIVERSITÀ DEGLI STUDI DI PADOVA

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Metal Additive Manufacturing
(A pilar of Industry 4.0)

Low surface quality

Unique, ~~refined~~ and me~~...~~ microst~~...~~

Varied explanations & hypotheses

AM alloy

316L stainless steel
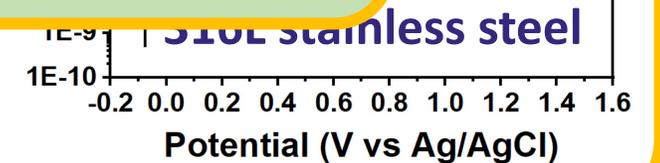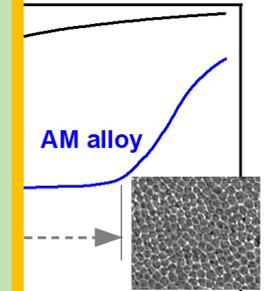
Strong need for a systematic approach to understanding their corrosion behavior for fostering confidence in their use in industries requiring reliable performance.
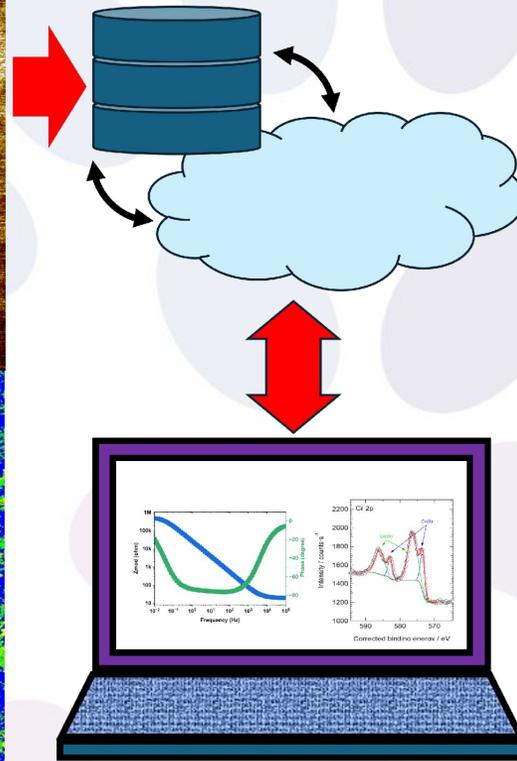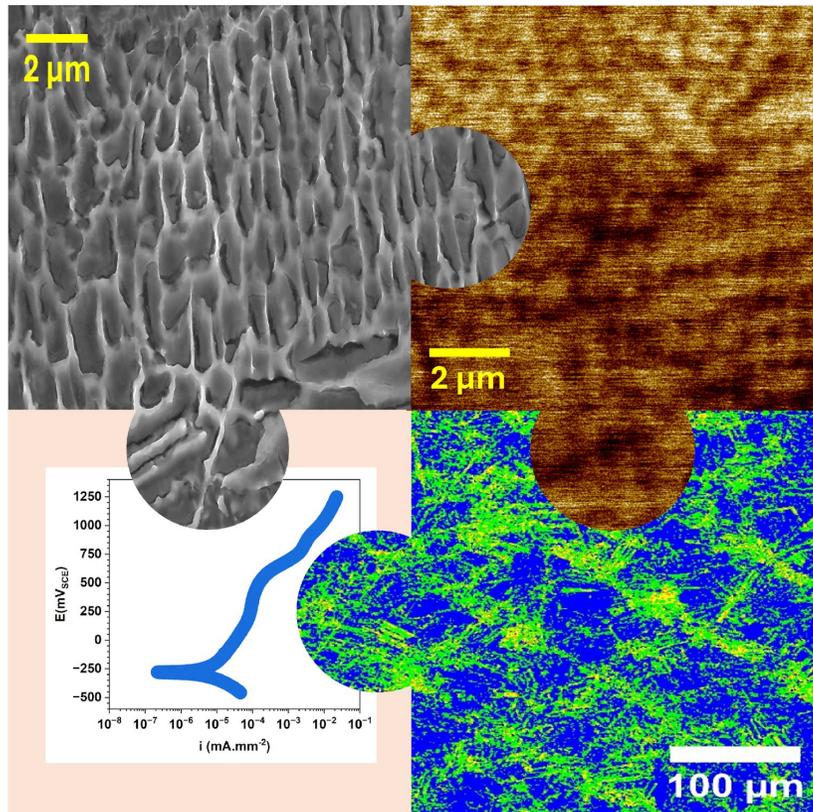
100 μm

Potential (V vs Ag/AgCl)

☐ High variability in material properties.
☐ Unclear connections between novel microstructures and their performance.

We have been generating a comprehensive database of intercorrelated results
... with the intention to make them openly accesible, hopefully beginning a culture of openness within
the corrosion comunity...

Processing

Structure

Performance
(*microstructure vs corrosion
characteristics*)

OSCARS

- Structured corrosion datasets for AM metals generated

- 3 peer-reviewed publications (13 citations in 1 year)

- International collaboration (EU–China joint research)

- Strong community interest at major conferences

Data Generation → **Open Database Concept** → **Community Engagement**

Corrosion Science 255 (2025) 113129
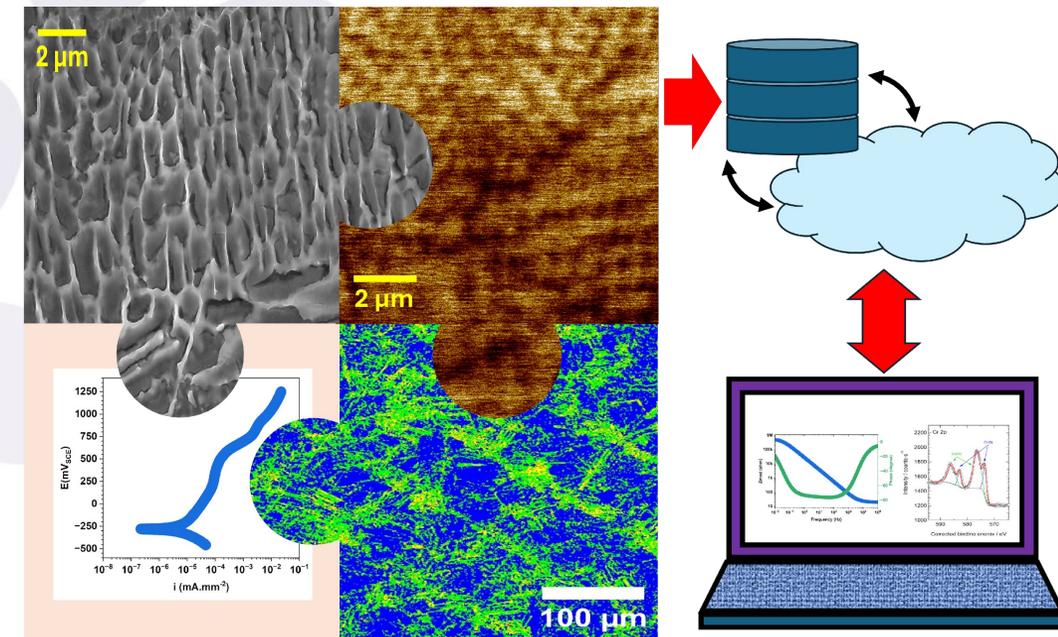Metals 15 (2025) 855
Corrosion Science 258 (2026) 113409

Sustainability, Exploitation & Next Steps – OpenCorrAM

Sustainability Strategy

- Towards FAIR-compliant open database
- Beginning standardized metadata & ontology in the field
- Community engagement

Community Exploitation

- Predictive corrosion modelling
- Benchmarking AM alloys
- Cross-laboratory data comparison
- AI-driven materials design

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