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Funded Project

OpenCorrAM - Open Corrosion Data for Additively Manufactured Alloys

Reynier I. Revilla, Vrije Universiteit Brussel, [ORCID: 0000-0002-5324-3677]

Implemented by

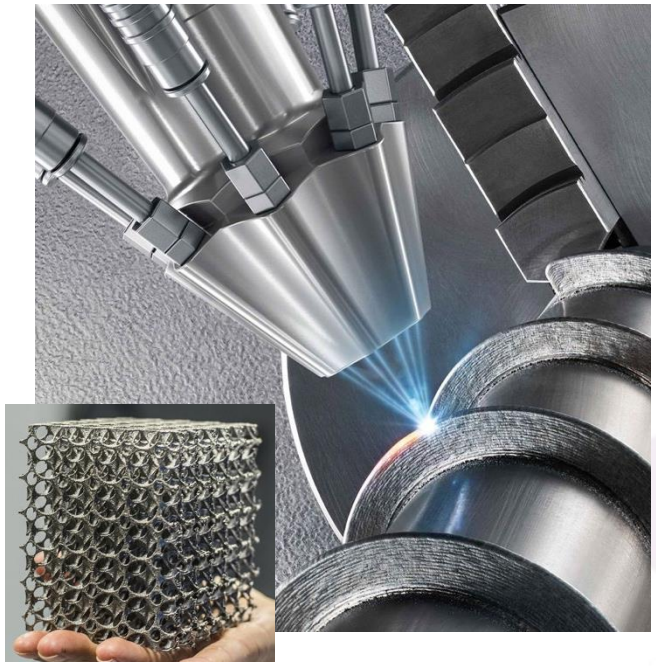
VRIJE UNIVERSITEIT BRUSSEL

UNIVERSITÀ DEGLI STUDI DI PADOVA

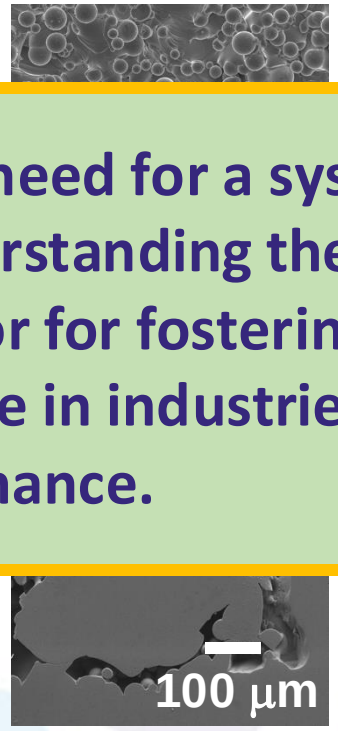
Funded by the European Union

CHALLENGE ADDRESSED

Metal Additive Manufacturing
(A pilar of Industry 4.0)

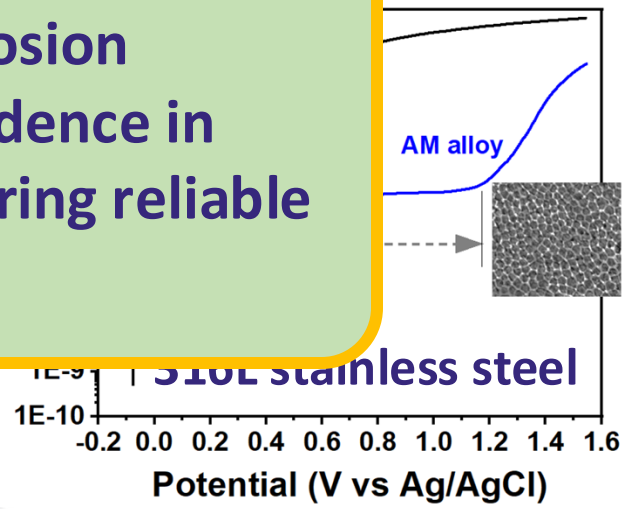


Low surface quality



Unique,
and me
microst

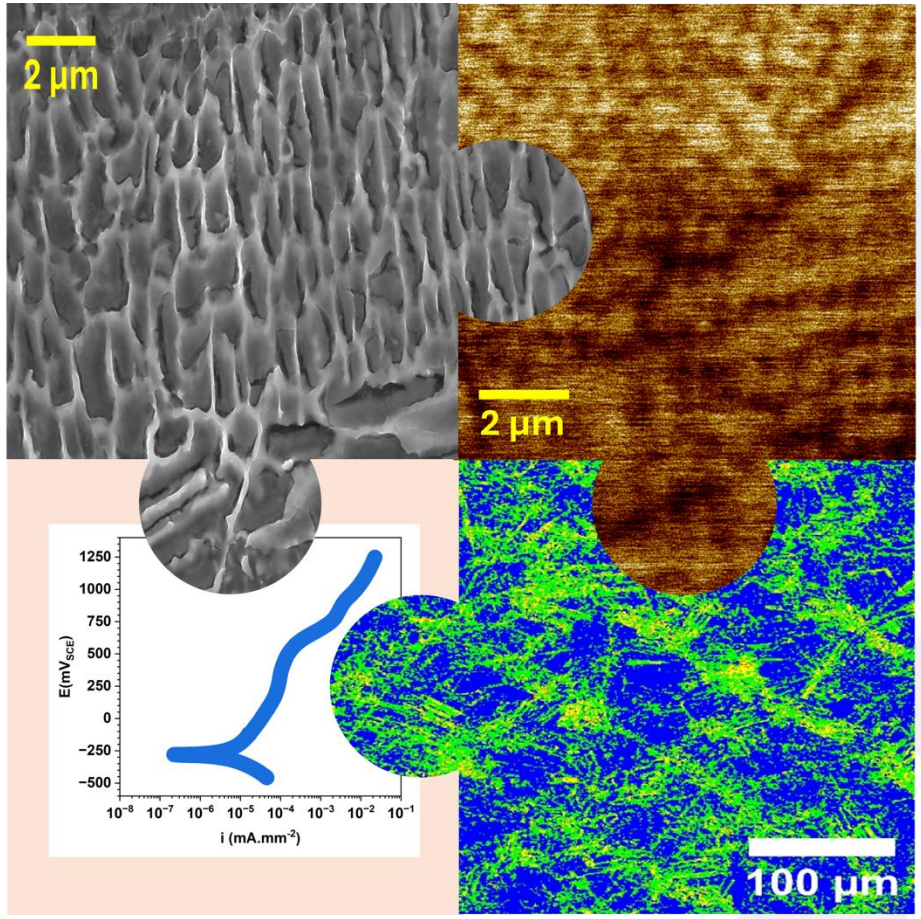
Varied explanations & hypotheses

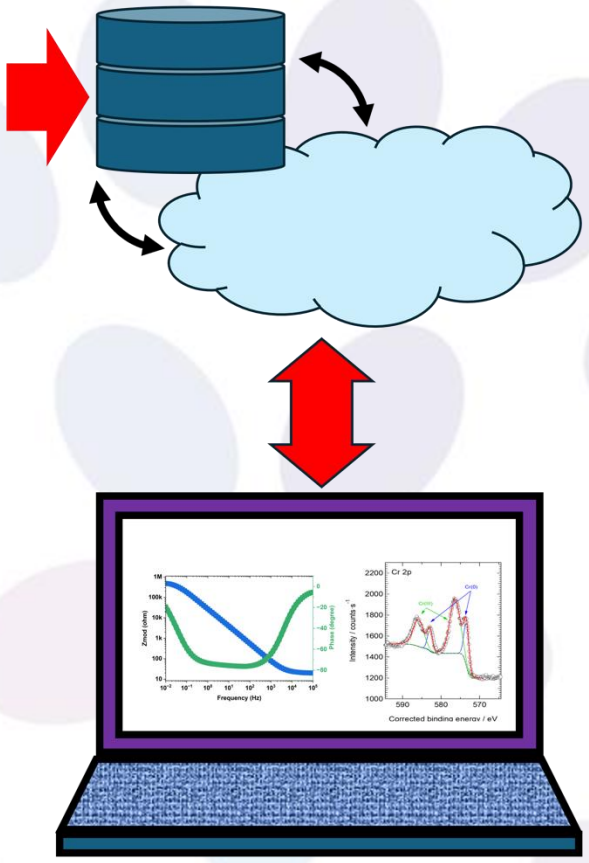


Strong need for a systematic approach to understanding their corrosion behavior for fostering confidence in their use in industries requiring reliable performance.

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

… to create an open and comprehensive database of intercorrelated results





Processing

Structure

Performance

(*microstructure vs corrosion characteristics*)

Machine learning approaches

Scientific and Methodological Advancements

- ✓ Establish relationships between microstructural features and corrosion behaviors.
- ✓ Enhance predictive capabilities in materials performance.
- ✓ Help standardize methods and approaches in corrosion studies related to AM materials.

Data Sharing and Collaboration

- ✓ Open this data through collaborations, fostering innovation in corrosion studies.
- ✓ Trigger others to share their corrosion data and contribute to this open database.

RISKS

- **Time-Consuming Techniques** → Only selected samples will undergo extensive analysis.
- **Adoption Challenges** → Limited participation may reduce the impact of the open database initiative.
- **Data Inconsistencies (during collaboration)** → Varied methodologies, test conditions, or data formats, hindering data integration.
- **Data Interpretation Limitations** → Predictive models may require extensive validation and could be affected by unknown variables.

TEAM

VRIJE UNIVERSITEIT BRUSSEL


Prof. Reynier Revilla (0000-0002-5324-3677)
Prof. Iris De Graeve (0000-0003-3491-1876)

UNIVERSITÀ DEGLI STUDI DI PADOVA




Prof. Manuele Dabalà (0000-0002-1143-327X)
Dr. Arshad Yazdanpanah (0000-0001-8969-2442)
Msc. Mona Khodabakhshi (0009-0007-0858-4919)
Msc. Amira Ben Hjal (0000-0001-5523-7337)