MatCHMaker

Materials Characterisation & Modelling

Unlocking the Future of Data-Driven Collaboration: Shaping the Horizon of Open Science and Industry Innovation

Final exploitation workshop

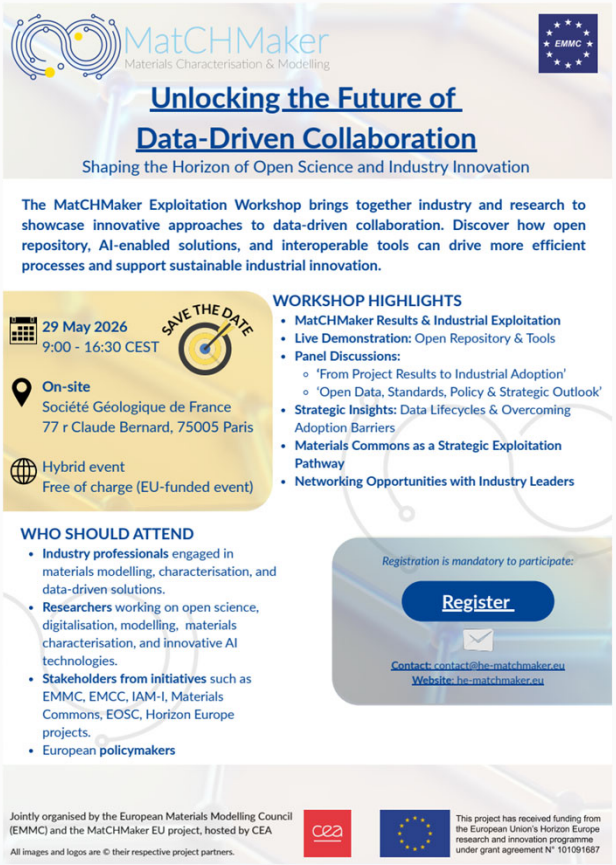
May, 29th, 2026

Welcome address,

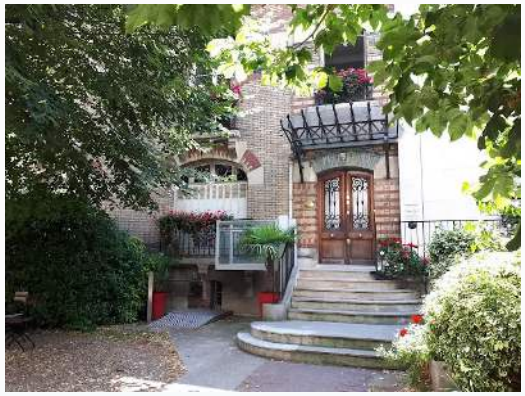
Ludovic JASON, CEA

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement Nº 101091687.

Final exploitation workshop



Welcome in Paris for this final workshop organized by EMMC and the MatCHMaker EU project



MatCHMaker – a HE project

Objectives

Develop a model-based innovation process (workflow) to accelerate advanced (multiscale and multiphase) materials' design and validation, novel characterization (material property / performance), modelling (data and physics based)

- Understanding the link between properties and complex microstructural features of multiphase materials
- Accelerated multiphase multiscale materials design
- Materials sustainability assessment

Reinforce traceability, integrity and interoperability of characterization and modelling (C&M) data and workflows through a semantic approach using material ontology connected with CHADA (characterization) and MODA (modelling) methods

Making C&M knowledge and data readily accessible by developing an OPEN data REPOSITORY, ontology-based, integrating intercorrelated concepts and data coming from the proposed C&M Workflows

MatCHMaker - Use Cases

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Construction - Cement

Decrease CO2 emissions and waste of cement production

To build a predictive model for the strength of limestone calcined cements as a function of the replacement level, clinker mineralogy and fineness → Maximum substitution of clinker while maintaining equal/superior performance

Energy - Solid Oxide Fuel/Electrolysis Cells (SOFC/SOEC)

Produce hydrogen without CO2 emissions and achieve the highest efficiency

GENVIA

To improve performance of cell technology and mechanical robustness of electrochemical cells implemented in SOEC/SOFC via advanced modelling and characterization

Mobility - Proton-Exchange Membrane Fuel Cells (PEMFC)

Produce zero-emission power in multiple applications

To participate in the development of new future high performance material by enhancing analytical and computational analysis

MatCHMaker - Methodology

Three scientific pillars

- Advanced data acquisition - Evaluation of microscopic and macroscopic quantities
- Machine learning tools (ML) - Reducing the time for acquisition and estimate the link between microstructural and macroscopic properties
- Advanced models - Multiscale models and correlation with sustainability and social impacts (LCA)

One robust validation process

- Confrontation between ML tools, advanced modelling tools and experimental results
- Validation of KPIs (Key Performance Indicators) by end-users and including sustainability assessment of new materials

Knowledge transfer through semantic interoperability

Utilizing and expanding existing domain ontologies on characterization

Data sharing - Open repository

- Storage and quick access to data combined with a uniform and interoperable manner to create and access the models

Standardization activities

- Standardization landscape analyses (especially gap analysis) and Recommendations for improving the existing standards

MatCHMaker – Open questions

MatCHMaker, like other sister projects, is based on data-driven collaborations, encompassing both data production and data analysis.

How to make the most of data – driven collaborations :

- How to encourage industrial adoption of the project results?
- How to support data lifecycles including non-technical adoption barriers?
- How to implement and develop data interoperability and sustainability?

Agenda of the workshop

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Start	Session topic	Contributors
9:00	*Registration & Executive Networking*	
9:30	**Welcome Address**	Ludovic JASON (CEA)
9:45	**Opening Remarks: European Innovation Perspective**	Isabelle CHATAIGNER, (French Ministry of Higher Education, Research and Space)
10:00	**MatCHMaker Results & Industrial Exploitation Pathways** • Interoperable semantic frameworks and ontologies • Open Repository & AI-enabled solutions • Industrial integration and sustainability models	Nadja ADAMOVIC (TU Wien) Iacob CRUCIANU, Otilia BULARCA (SIMAVI) Jesper FRIIS (SINTEF) Geoffrey DANIEL (CEA) Alexandre OUZIA (Heidelberg Materials) Patrice TOCHON (GENVIA) Giuseppe MINAFRA (RINA)
10:40	**Live Demonstration** • Open Repository functionality • Tool interoperability in practice	Iacob CRUCIANU (SIMAVI)
11:00	*Coffee & Networking Break*	
11:30	**Panel I: From Project Results to Industrial Adoption** • Integration into R&D workflows • Adoption barriers & scalability strategies • Bridging research outcomes & industrial implementation	**Moderator:** tbc **Panelists:** Julian DE MARCHI (Netherlands Aerospace Centre) Marzuk KAMAL (AeonX AI) Jean-Yves DELANNOY (Arkema) Pierre KIENER (Michelin)
12:15	*Lunch & Strategic Networking*	

Start	Session topic	Contributors
13:30	**White Paper on Data Lifecycles & Non-Technical Barriers** • Strategic recommendations • Alignment across European initiatives • Overcoming non-technical adoption barriers	Alexandre OUZIA (Heidelberg Materials)
14:15	**Materials Commons as a Strategic Exploitation Platform** • Sustainable digital infrastructure • Federated integration of EU project results • Cross-project & cross-border collaboration pathways	Simon STIER (Fraunhofer ISC)
14:45	*Coffee & Networking Break*	
15:15	**Panel II: Open Data, Standards, Policy & Strategic Outlook** • Interoperability & metadata standards • Goverance & long-term infrastructure sustainability • Strategic priorities for Europe's digital materials ecosystem	**Moderator:** Gerhard GOLDBECK (EMMC) **Panelists:** Isabelle CHATAIGNER (MESRE) Simon STIER (Fraunhofer ISC) Ennio CAPRIA (ESRF) Marek CEBECAUER (Czech Academy of Sciences)
16:00	**Targeted Business & Collaboration Exchange** • Industry-research matchmaking • Horizon Europe synergies • Future collaboration opportunities	
16:30	*Estimated end time*	

Thank you!

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