The following ***SCIENCE CASE, CONCEPT AND FEASIBILITY REPORT*** entered into on the 22nd of February 2024 as inter-institutional and multilateral agreement for a new Research Infrastructure (RI), euMATERIA and among:

European consortium	*Country*
NPI - Nuclear Physics Institute (Řež)	Czech Republic
HUN-REN CER (Budapest)	Hungary
DIPC - Donostia International Physics Center (San Sebastian)	Spain
CIRFC - Centre international de recherche aux frontières de la chimie (Strasbourg)	France
IM@IT - ISIS@MACH ITALIA (Rome) PoliMI - Politecnico Milano (Milan)	Italy
UniGro - University Medical Center Groningen (Groningen)	The Netherlands
AMU - Adam Mickiewicz University (Poznań)	Poland
STFC-Science and Technology Facilities Council (Chilton) UCL - University College London (London)	UK
PSI - Paul Scherrer Institute (Villigen) QZabre Ltd. (Zurich)	Switzerland

The European consortium encompassing Research Centres and Universities met in several hybrid meetings, from the 21st of September 2023 until the 29th of January 2024, with the objective of developing a *Science Case, Concept Feasibility Report*' document[1] for a new research infrastructure, named *euMATERIA,* the *"European multidisciplinary research infrastructure for application from life science to engineering"***.**

On the hybrid meeting held on the 22nd of February 2024 the consortium' members agreed on the content of the *Science Case, Concept Feasibility Report* which was signed by the PI of each consortium' members in *support of the establishment of the euMATERIA Research Infrastructure within the ESFRI Landscape.*

[1] *'Science Case, Concept and Feasibility Report' document to be proposed to ESFRI - was shaped by a European consortium, encompassing Research Centres and Universities, was agreed on the 22nd February 2024 and signed by all members of the consortium.*

euMATERIA[2] - The European multidisciplinary research infrastructure for application from life science to engineering

Science Case, Concept and Feasibility Report

22nd February 2024

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The euMATERIA is a new RI to be proposed to ESFRI with a suite of analytical techniques for users engaged across a variety of multidisciplinary disciplines. The overarching objective is to promote the full functioning of Medium Range Facilities (MRF) using a consolidated and coordinated access system to support and steer the emergence of new and innovative multidisciplinary research. The current system misses two significant opportunities: 1) to optimise the initial capital investment made by European Countries by maximising the utilisation of high-impact machine time and 2) to enable a broader section of the scientific community to progress qualitatively and climb the pipeline from Small Research Facilities (SRF) to Medium Range Facilities (MRF) and to Large-Scale Facilities (LSF) more rapidly. *This will ensure significant leveraging of public investment in national and international facilities and will take full advantage of the very significant investments in LSF.*
The euMATERIA consortium encompasses research centres, universities, and Small and Medium Enterprises (SME), all with the common feature that they operate SRF, MRF and LSF - the latter being highly specialised and often unique infrastructures in the European landscape - located in Czech Republic, France, Italy, Hungary, the Netherlands, Spain, Switzerland, Poland, and United Kingdom. Through synergistic research activities among MRF/SRF, and LSF, euMATERIA proposes to operate a multi-level Transnational Access (TA) program for users from both academia and industry, enabling the multidisciplinary community – ranging from life sciences to engineering.

[2] *Multi-disciplinary, single-site and distributed Research Infrastructure* - euMATERIA *aims to become a "European infrastructure with combined and integrated multi-level access to Medium Range- and Large Scale- Facilities for frontier research on materials and interfaces with analysis/instrumentation/calculation methods". To achieve this goal a structure of several centres is envisaged, each one co-located and well connected to relevant LSFs offering a wide opportunity of exploiting materials definition and physical/chemistry properties. Each centre shall present common characteristics in terms of basic instrumentation platform and organisation, as well as connection to radiation source operating on the same site, and other complementary existing infrastructures or special local competences. The European Strategic Forum on Research infrastructures ESFRI defines a "distributed facility" as a facility with one unique name - legal status, one management structure- strategy and development plan, and having one annual report - fiscal address although its facilities are in different sites and countries.*

The euMATERIA ambition is to bring together researchers and infrastructure across Europe to address key societal challenges, and particularly those of energy storage, environment, and health. The euMATERIA combines and integrates the specific hubs of expertise in complex materials and interfaces located at national laboratories (academia, research centres and industry) of the consortium. The RI will operate in transversal science areas, not currently covered by a single national laboratory, providing free Transnational Access (TA) to state-of-the art pipeline SRFs-MRF-LSF tools through a single-entry point, the digital userHub-euMATERIA, for multidisciplinary frontier research at the nanoscale scaling up to the micro-world; this will put Europe at the forefront of applications spanning a variety of topics from life sciences to engineering.

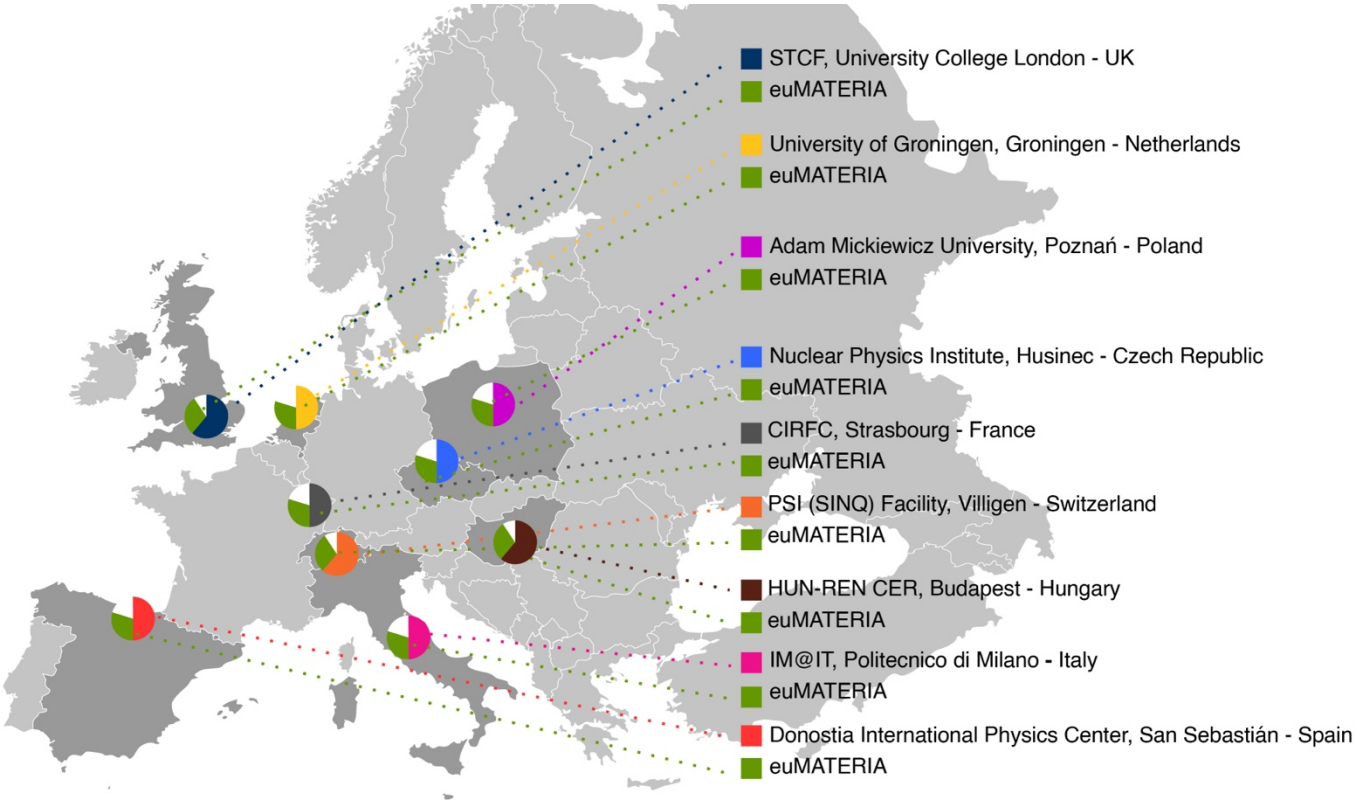

Figure 1- euMATERIA's consortium members