

Catalysis: Key to Sustainability

“ ACENET ERA-NET offers a unique opportunity to focus at a transnational level on those technologies that have a substantial impact on the sustainability and economics of products and processes. ”

Applied catalysis is a strongly interdisciplinary field, encompassing chemistry, bioscience, and materials and engineering science, among others. It also has a large potential to address many areas of socio-economic activity as well as key European challenges, such as sustainability and energy. ACENET ERA-NET (Applied Catalysis ERA-NET) brings together ten national organisations responsible for funding national applied catalysis research. In spite of its importance, the fragmentation of catalysis research into many sub-disciplines has blinded decision-makers to its advantages – ACENET ERA-NET wants to bring applied catalysis and related sustainable chemical research firmly to the fore.

Catalysts and catalytic technologies underpin many aspects of society and industry today. The OECD estimates that 30% to 40% of the gross national product of developed economies, such as the EU Member States, depends on them. More specifically, catalysts are used in 80% of the manufacturing processes for chemicals, pharmaceuticals and materials. Furthermore, in the energy and transport sectors, catalysts are deeply involved in the control of pollution and the clean efficient use of fuels; they also offer waste-free and risk-free manufacture of chemicals and pharmaceuticals, thereby contributing to sustainability in many ways. And, by definition, catalysts are energy efficient and vital to our economic success and quality of life.

The many and broad application areas of catalytic technology tend to add to the fragmentation of the sector, which is subdivided by sub-discipline, application and, in a European context, by country. The ACENET ERA-NET network unites ten research management and funding organisations from nine Member States to bring coherence and cooperation to national research programmes on catalysis, such that this is recognised as a challenging area of science and as an agent for sustainable economic growth.

Research programme roadmap

ACENET ERA-NET is pursuing several objectives to build coordination and cooperation between its members' programmes – for example, systematic exchange of information to identify good practice, and assuring technology transfer and industrial participation. In addition, coordination and joint management of existing national research programmes will be undertaken to produce case studies that can be used to identify good practice, and barriers to cooperation arising, for example, from cultural or procedural differences. In the longer term, the development of joint management procedures will lead to joint research programmes, guided by a common vision and strategy. Ideally, this strategy would include the formulation and establishment of new pan-European research programmes in the field of catalysis and related sustainable chemistry, based on the content of the European Strategic Research Agenda that will be developed in the European Technology Platform on Sustainable Chemistry. Management of such pan-European research programmes will follow the procedures jointly defined by the ERA-NET partners.



Coordination Action ACENET ERA-NET

**Full title:**

ERA-NET for applied catalysis in Europe

Research field:

Applied catalysis and sustainable chemistry

Coordinator:

The Netherlands: Netherlands Organisation for Scientific Research

Partners:

- Germany: Bundesministerium für Bildung und Forschung
- Germany: Forschungszentrum Jülich - Projektträger Jülich
- France: Centre National de la Recherche Scientifique
- Poland: Ministry of Scientific Research and Information Technology
- Portugal: Fundação para a Ciência e a Tecnologia
- Italy: Ministero dell'Istruzione della Università e della Ricerca and Consorzio Reattività e Catalisi
- Greece: Ministry of Development
- Spain: Ministerio de Educación y Ciencia
- United Kingdom: Engineering and Physical Sciences Research Council

Further information:

Dr Louis B.J. Vertegaal,
Netherlands Organisation for Scientific Research
Laan van Nieuw Oost-Indië 300
P.O. Box 93223
2509 AE The Hague, Nederland
Fax: +31 70 3440 642
e-mail: vertegaal@nwo.nl
website: <http://www.nwo.nl>

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“ *A collective effort by all stakeholders is essential for innovative research. It is exciting to align the strategies of government, academia and industry.* ”

The ACENET ERA-NET partners will also pay attention to designing a framework for a future European education and training programme for applied catalysis. Furthermore, coordination with other ERA-NETs is foreseen, in particular: ERA-Chemistry, which coordinates national research programmes in chemistry; and SUSPRISE, dealing with 'sustainable enterprise' topics.

Bringing real benefits

The sharing of good practice and, where needed, infrastructure, means ACENET ERA-NET will build the integrated processes between the national research-funding organisations that the European Research Area needs. The European Strategic Research Agenda will not only guide current funding decisions, but will also serve national research programmes in identifying and

planning a more rational use of funds based on transnational cooperation in the longer term. Cooperation through ACENET ERA-NET will encourage partners to share expensive equipment and coordinate the strong transnational pool of research activities for the benefit of Europe. Higher efficiency in research will be another result, as cross-discipline knowledge-sharing finds wider applications for known catalytic technologies. Finally, the inventory on training needs will give impetus to educators to provide the courses and qualifications needed to attract young scientists. A critical outcome will be that national and transnational research programme management will be informed by the needs of the ERA, as set out by the European Technology Platform on Sustainable Chemistry, and will have the tools in place for effective cooperation.