Shortlisted COST Action proposals for CSO approval

Open Call - collection date 28 March 2014 (OC-2014-1)

192nd CSO Meeting

12 – 13 November 2014, Sofia (Bulgaria)

COST is supported by the EU Framework Programme Horizon 2020

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BM1405

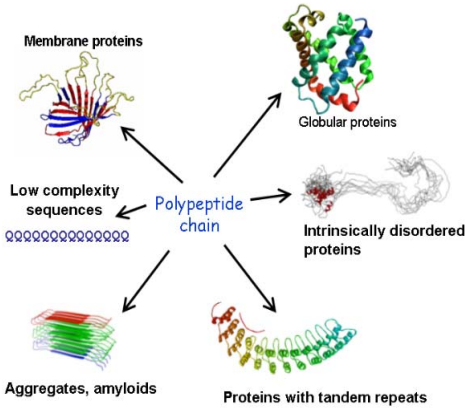
Non-globular proteins: from sequence to structure, function and application in molecular physiopathology (NGP-NET)

Objectives

The main aim of this COST proposed Action is to create an effective European network, seeking synergy between participants towards joint activities, enabling the pooling of otherwise fragmented resources and uniting the voices of a large number of European labs, in the better understanding of overlapping NGP phenomena and their joint consensus classification. Various researchers will join forces to develop guidelines in the NGP field by a coordinated consensus approach, including experts in the field, and fostering scientific discussion on the subject. The dissemination to the scientific community of best practices and stimulating a wider scientific discussion on NGP phenomena will thus enhance the quality, translation and impact of European research in a highly competitive and relevant area of biology. Although the Proposal covers a large number of problems at different levels (as structured in the WGs), they all carry as their central theme the problems that come from extensive fragmented resources and conflictual definitions in this field. The network will allow people to share data and experiences, as well as modelling and solving issues in this competitive and challenging area.

Abstract

Non-globular proteins (NGPs) encompass different molecular phenomena that defy the traditional sequence-structure-function paradigm. NGPs include intrinsically disordered regions, tandem repeats, aggregating domains, low-complexity sequences and transmembrane domains. Although growing evidence suggests that NGPs are central to many human diseases, functional annotation is very limited. It was recently estimated that close to 40% of all residues in the human proteome lack functional annotation and many of these are NGPs. While a better understanding of NGPs is crucial to fully comprehend human molecular physiopathology, progress has been hampered so far by the lack of a systematic approach to their study.
This Proposal aims to create a pan-European scientific network of groups that work on NGPs to strengthen, focus and coordinate research in this field. It proposes to develop a novel classification of NGPs by consensus among interested experts that will be showcased on a newly developed web site, along with meetings, training schools and scientific missions on NGP-related topics.



Keywords: Computational biology, proteome, intrinsic disorder, tandem repeats, amyloid aggregation

Working Groups

WG1 NGP Classification and Coordination
WG2 Intrinsic Disorder
WG3 Repeats
WG4 Aggregation

Near Neighbour Country (NNC): Russia
International Partner Country (IPC): Argentina

BM1406

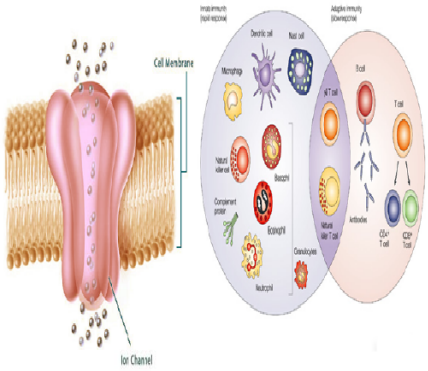
ION CHANnels and IMMUNe RESPONse Toward a global understanding of immune cell physiology and for new therapeutic approaches (IONCHAN-IMMUNRESPON)

Objectives

The main objective of the proposed COST Action is increasing and enhancing the knowledge about the role of ion channels in non-excitable cells such as immune cells to develop alternatives therapeutic approaches for disorders associated with immune system dysfunction (autoimmune, chronic inflammatory and allergic diseases as well as transplantation and cancer). This Proposal will bring together leading research universities, international institutes and leading medical industries in its research and training activities to work synergistically in the development of novel targeted therapies. The huge advantage of this Proposal is the availability of integrative approaches involving both biophysics and immunology, combined with cutting edge technologies that can be used as models to address the role of ion channels in immune cells.

Abstract

The function of ion channels in immune cells is an emerging field of great basic science and clinical interest because they provide powerful molecular targets to modulate immune cell function. The Ionchan-Immunrespon network is a novel and exciting enterprise that involves internationally recognised scientists across 15 European countries. The specific aims are:
i) to develop a strong European workforce to understand the role of ion channels in immune cells, and how deregulation of their function can cause disease,
ii) to identify new targets for therapeutic immuno-interventions through modulation of ion channels. Our unique combination of biophysical approaches combined with molecular biology, cell biology and immunology provides a powerful approach for dissecting the functional cell biology of the immune system.
The Proposal therefore will strengthen academic research in Immunology within Europe and foster closer collaborations with drug and diagnostics development programs in industry.



Keywords: Ion channels, immune cells, cancer, auto-immune and inflammatory diseases, therapeutic approaches

Working Groups

WG1 Identification and Characterization of ion channels in immune cells
WG2 Role of ion channels in immune pathologies
WG3 Ion channels as new targets in therapy and diagnosis

International Partner Country (IPC): USA

BM1407

Translational research in primary ciliary dyskinesia: bench, bedside, and population perspectives (BEAT-PCD)

Objectives

The main objective of the proposed COST Action is to create a global Europe-led network of multidisciplinary primary ciliary dyskinesia (PCD) clinicians and researchers. The network will promote research from basic science to clinical care, with the ultimate goal to develop treatments that lead to measurable improvements in long-term outcome of patients with PCD.

Abstract

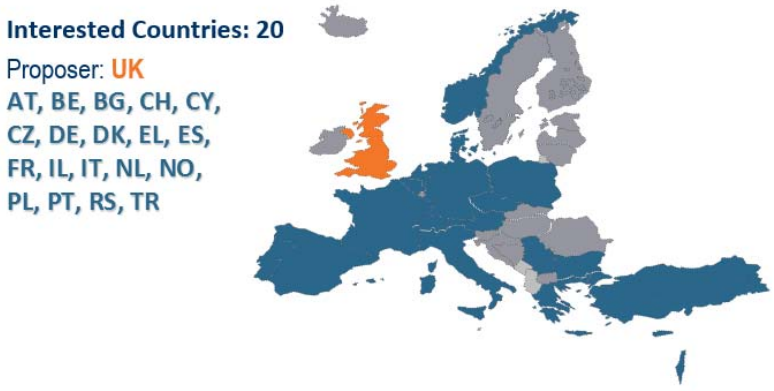
Primary ciliary dyskinesia (PCD) is a rare genetic disease affecting approximately 1:10,000. Cilia that line the respiratory tract are dysfunctional and cannot clear mucus properly leading to progressive upper and lower airway disease, including bronchiectasis, hearing impairment and chronic sinusitis. Cilia are common structures throughout the body, so PCD may affect other organs, for example leading to situs inversus, congenital heart defects or infertility. Mutations in 30 different genes have been identified to date, accounting for approximately 60% of PCD. The clinical picture is very heterogeneous, and as for other rare diseases data on the natural course, phenotypic variability, associations with genotype, and effectiveness of treatments of PCD are scarce. Strategies to manage PCD are derived from other diseases, and are controversial. Scientists, clinicians, allied health professionals and patient representatives unite in this Proposal, providing a platform for communication and exchange. The proposed COST Action will facilitate PCD-related research to identify mechanisms, study disease patterns and progression, define outcome measures, improve clinical management and identify high priority therapies. This Proposal is a platform for preclinical studies that will lead to clinical trials.

Keywords: primary ciliary dyskinesia, outcome measures, in vivo models, clinical trials, molecular therapy

Working Groups

WG1 Basic science
WG2 Epidemiology
WG3 Clinical care
WG4 Clinical trials

Near Neighbour Country (NNC): Palestinian Authority
International Partner Country (IPC): Canada, India, USA



BM1408

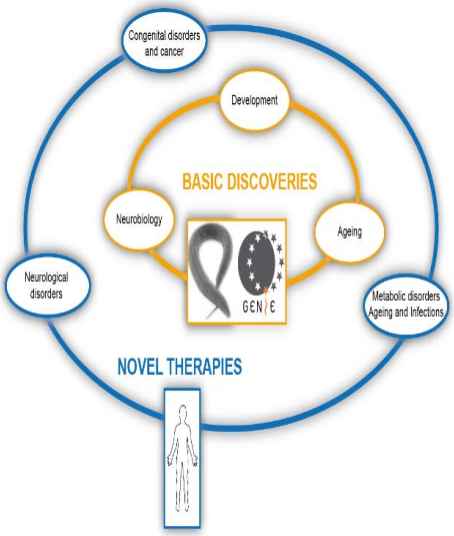
A collaborative European network of C. elegans early-stage researchers and young principal investigators (GENiE)

Objectives

The main objective of the COST proposed Action is to promote and co-ordinate the use of C. elegans for basic 'blue-skies' research as a model for human disease and bridge the gap between fundamental research and therapeutic innovation. The Proposal establishes a network of young C. elegans researchers (GENiE) and promotes collaborative interdisciplinary approaches through the creation of a centralised communications platform across Europe. As the current European C. elegans community is fragmented and lacks opportunities to interact, this Proposal, led by and focusing on young Principal Investigators (PIs) and ESRs, will foster high-quality collaborative research and build research capacity by pooling expertise. Target audiences include C. elegans researchers and the wider biomedical research community, the general public, policy makers and industry members.

Abstract

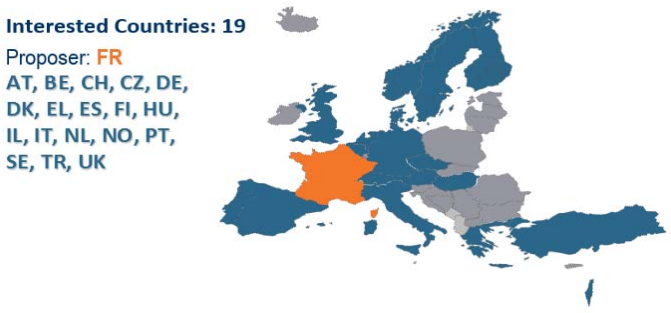
The main objective of this proposed COST Action is to promote the use of C. elegans for basic 'blue-skies' research and as a model for human disease, drug development and pre-clinical trials, through the establishment of a network of young C. elegans researchers acting as leading scientists and the creation of a centralised communications platform across Europe. The nematode C. elegans has been instrumental in the discovery of conserved principles of fundamental biological processes, leading to novel therapies for a broad range of human diseases.
During the last decade, Europe has seen a dramatic increase in the number of laboratories using this model (80 new groups in 18 COST countries) but the community remains fragmented. This COST network is established to build capacity by uniting young European researchers working across three key fields essential to human health: organismal development, neurobiology and lifespan. GENiE (Group of C. elegans New Investigators in Europe) will enhance and speed up state-of-the art European research by promoting interactions and collaborations across Europe, and competitivity with US labs. GENiE will position Europe at the centre of a scientific excellence network dedicated to the discovery of biological principles, the basis of therapeutic treatments of the future.



Keywords: C. elegans / human disease models / basic biological principles in developmental biology, neurobiology, ageing and immunity / young investigators / basis for innovative therapy

Working Groups

WG1 Genetics of human congenital disease and regenerative medicine
WG2 Neurological and behavioural disorders
WG3 Metabolism and healthy ageing
WG4 Technology and Innovation
WG5 Translation
WG6 Networking and public awareness of basic research



CM1404

Chemistry of Smart Energy Carriers and Technologies (SMARTCATS)

Objectives

The main objective of this proposed COST Action is to create a European-wide network of high calibre academic, research and industrial partners capable of addressing the "grand challenge" of matching the most promising SECs with the advanced energy conversion technologies for the 21st century. This is by itself a relevant objective to keep European science and technology at the forefront of the world scene. In this sense the expected deliverables of this Proposal will be both validated numerical models, based on novel chemical kinetics tools (models, mechanisms and kinetic database), and advanced diagnostics ready to be applied to technological processes design and control. This Proposal is expected to significantly increase the already outstanding level of basic and applied knowledge of the European research institutions and industries in the field of combustion and energy.

Abstract

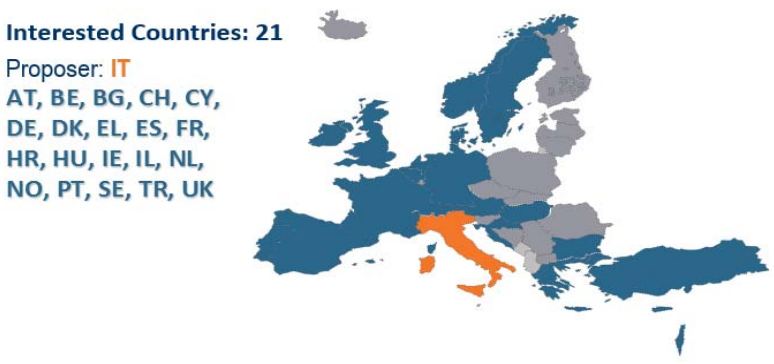
The primary aim of the proposed Action is to create a Europe-wide network of world leading academic and research institutions and key industries to promote the use of smart energy carriers on a large scale in order to increase fuel flexibility and carbon efficiency of energy production and to support distributed energy generation strategies. The approach to accomplish this aim is twofold. On the one hand, academic/research organizations will devote strong efforts to bring together fundamental/advanced numerical and diagnostic tools to improve the understanding of combustion kinetics and by-products formation of smart energy carriers at micro/meso-scale levels. On the other hand, the intended exchange between academic and industrial partners will support the optimization of tools developed in the Action exploiting the way that smart energy carriers could be utilised at the macro-scale in advanced combustion technology devices. This interaction will lead to the identification of standards and criteria for development of a searchable database and Internet tool devoted to integration of experimental and numerical combustion chemical/physical data which will provide an easy access to such information relevant to smart energy carrier components.

Keywords: Innovative and sustainable fuels Detailed and reduced chemical kinetic models Pollutants diagnostics and reduction Advanced combustion technologies Flow-chemistry interaction

Working Groups

WG1 Smart energy carriers gas phase chemistry: from experiments to kinetic models
WG2 Chemistry for control of by-products in smart energy carrier conversion
WG3 Chemical and optical advanced diagnostics for smart energy carriers conversion monitoring
WG4 Standard definition for data collection and mining toward a virtual chemistry of smart carriers
WG5 Integration of fundamental knowledge towards technology application for smart energy carriers exploitation

International Partner Country (IPC): China, USA



CM1405

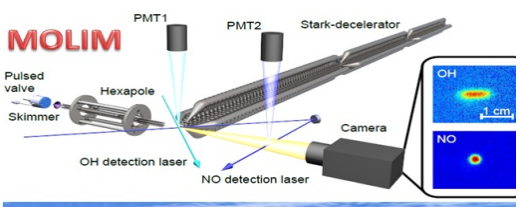
MOLecules In Motion (MOLIM)

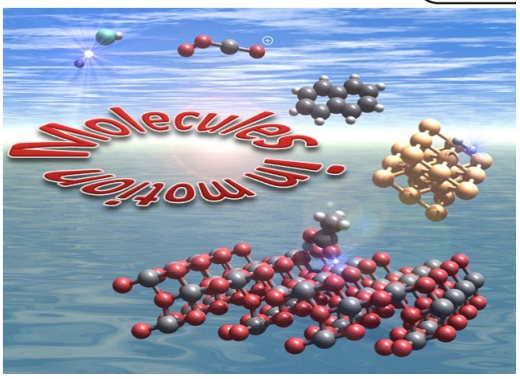
Objectives

The multifaceted, multilinked, highly interdisciplinary proposed COST Action will provide leadership for the development of computational tools for molecular sciences including determination of properties of complex non- and quasi-periodic systems, for the coupling of electronic and nuclear motions, for the application of the new tools to experimental problems of an outstanding nature, and it will become the ground for the emergence of the next generation of chemists who will be users of the next generation of chemistry tools.

Abstract

Interpretation of sophisticated experiments often requires advanced theories. A consistent set of user-friendly tools for an elaborate treatment of nuclear motions of microscopic and macroscopic systems does not yet exist.
Development of the armoury of first-principles nuclear motion theory, via the advancement of theories, algorithms, and codes, is the major goal of this Proposal, with special emphasis on quantum effects involving electrons as well as nuclei. Molecular scientists, modellers and engineers will all benefit from the new methods and codes. The developments cover quantum chemical, quantum dynamical, semi-classical, and advanced classical treatments. Access to most of the source codes developed within the proposed Action is provided to the scientific community free of charge. Multifaceted collaborative efforts with experimentalists applying the pilot versions of the new tools is considered to be vital to the success of the proposed Action. MOLIM is a platform for (a) development of an extensive, heavily interlinked collaboration network of theorists and experimentalists from more than 20 countries; (b) quick dissemination of important results to a large and growing scientific community; and (c) establishment of long-lasting EU-wide conferences and training schools, educating the next generation of users of the next generation of chemistry tools.



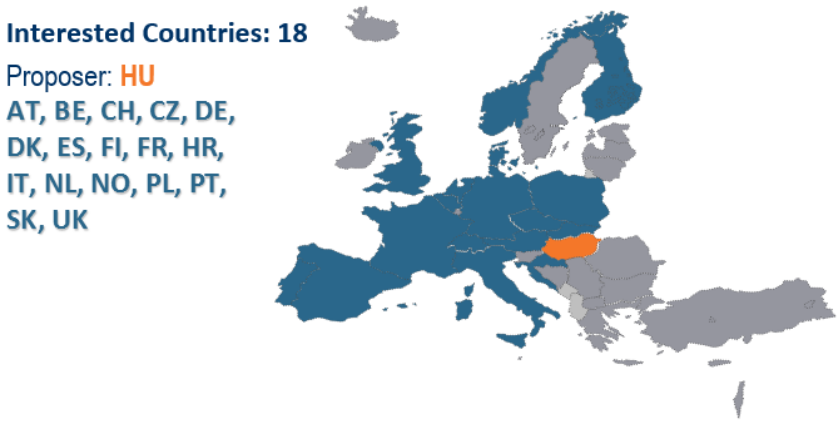


Keywords: nuclear motion theory, first principles quantum chemistry, surfaces and interfaces, new spectroscopic techniques, Born-Oppenheimer separation

Working Groups

WG1 Energy-resolved methods
WG2 Time-resolved method developments
WG3 Algorithm Development and High-Performance Computing
WG4 Information Systems

Near Neighbour Country (NNC): Algeria, Morocco, Tunisia



CM1406

Epigenetic Chemical Biology (EPICHEM)

Objectives

The main objective of this Action proposal is to establish the first European chemical biology network focused on epigenetics and to increase awareness of epigenetics within the European scientific community. The Action will be broadly based and comprise researchers from academia, research institutes, SMEs and multinational organizations from various disciplines including chemistry and biology.

Abstract

Epigenetics refers to dynamic changes that occur at the DNA, RNA and protein level in eukaryotes.
Epigenetics is at the heart of gene regulation and determines which genes are activated or silenced. It is of great importance fundamentally and has many exciting translational aspects including therapeutics, microbial pathway engineering and agriculture.
The key objective of the proposed Action is to establish the first European chemical biology network focused on epigenetics. This proposed COST Action will provide common ground for researchers from academia, research institutes, SMEs and multinational organizations. The fruitful interactions between these sectors will lead to the creation of new chemical tools as well as leads for therapeutics and agrochemicals. The Action's second objective is to increase awareness of epigenetics within the European scientific community and it will provide training for ESRs and emphasise inclusiveness by COST priority member countries.

Keywords: Epigenetics; chemical biology; drug discovery; food security; proteomics

Working Groups

WG1 Epigenetic Chemical Probes
WG2 Epigenetic Technology
WG3 Epigenetic Reprogramming

CM1407

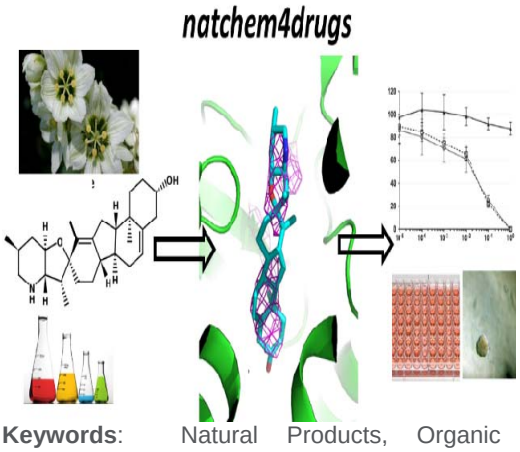
Challenging organic syntheses inspired by nature: from natural products chemistry to drug discovery

Objectives

The general aim of this COST Action proposal is to bring together Natural Products (NP) synthesis, computational chemistry, biology and pharmacology in a drug-discovery oriented strategy to provide NP of therapeutic relevance. This approach will be beneficial to both the fields of NP research and drug discovery. The further aim is to promote the translation of research results into possible industrial applications for healthcare. Moreover, the proposed Action will give rise to a new generation of scientists skilled in bioinformatics, biology and NP chemistry and able to cross boundaries of these disciplines.

Abstract

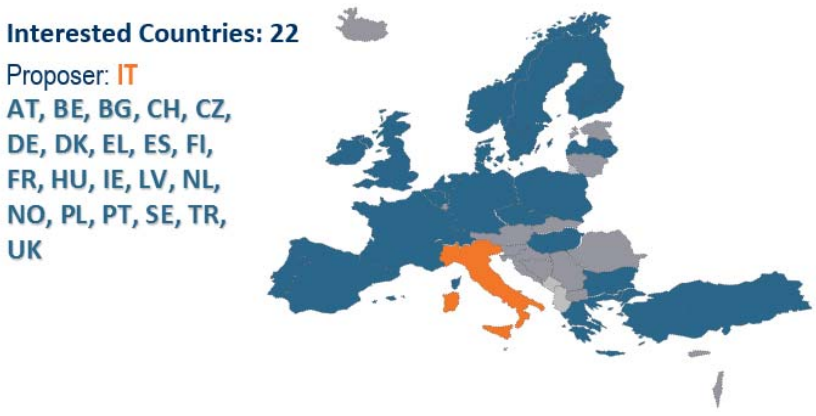
Natural products (NP) have had a major impact on chemistry, chemical biology and drug discovery and have been part of medical remedies since ancient times. Nowadays, NP represent a unique source of leads for medicinal chemistry and drugs derived from NP have found widespread use for the treatment of cancer, cardiovascular diseases, bacterial and fungal infections. The general aim of this proposed COST Action is to advance the field and to maintain the high level of expertise in NP chemistry within Europe by combining synthetic chemistry, computational chemistry, chemical biology, and pharmacology to find new lead structures of pharmaceutical relevance. Since chemistry plays a key role in addressing the industrial requirements for preclinical candidates in terms of physicochemical properties of NP and their analogues, this Proposal further aims to promote the translation between fundamental academic research and industrial drug discovery by means of NP chemistry.



Keywords: Natural Products, Organic Synthesis, Drug Discovery, Molecular Modelling, Chemical Biology

Working Groups

WG1 Optimization of NP chemistry/isolation/purification/characterization
WG2 Viral Infections
WG3 Cancer
WG4 Tuberculosis



ES1405

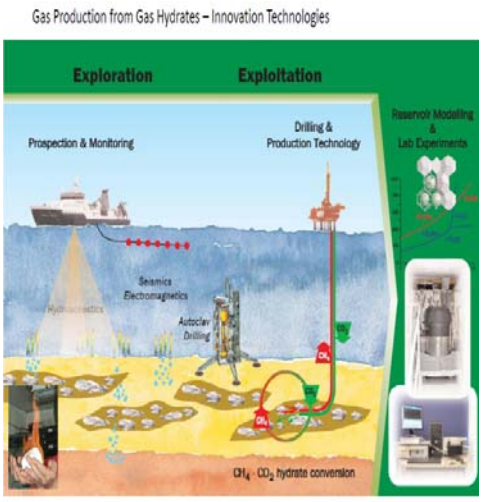
Marine Gas Hydrates: An Indigenous Resource of Natural Gas for Europe (MIGRATE)

Objectives

The main objective of the proposed COST Action is to amalgamate and coordinate the various fields of scientific and technological expertise relevant to the environmentally and economically viable development of gas hydrate as a future energy resource. The outcome of this Action will be the definition of key gas hydrate reservoirs at European continental margins and a guideline of best environmental practises and exploitation strategies.

Abstract

Gas hydrate accumulations in continental shelf sediments are considered a promising resource for future gas supply by several non-COST countries (e.g. USA, Japan, China, India, South Korea, and Taiwan). In 2013, the Research Consortium for Methane Hydrate Resources in Japan (MH21) produced gas during a successful offshore field test. In Europe, as elsewhere, demand for natural gas is continuously increasing. This COST Action Proposal is designed to integrate the expertise of a large number of European research groups and industrial players to promote the development of multidisciplinary knowledge on the potential of gas hydrates as an economically feasible and environmentally sound energy resource. In particular, MIGRATE aims to determine the European potential inventory of exploitable gas hydrates, to assess current technologies for their production, and to evaluate the associated risks. National efforts will be coordinated through Working Groups focusing on 1) resource assessment, 2) exploration, production, and monitoring technologies, 3) environmental challenges, 4) integration, public perception, and dissemination. Study areas will span the European continental margins, including the Black Sea, the Nordic Seas, the Mediterranean Sea and the Atlantic Ocean.



Keywords: Gas hydrate; natural gas; energy resources; exploration and production technologies; environmental risk assessment; monitoring technologies

Working Groups

WG1 Resource assessment
WG2 Exploration, Production and monitoring technologies
WG3 Environmental challenges
WG4 Integration, public perception, dissemination

International Partner Country (IPC): USA

ES1406

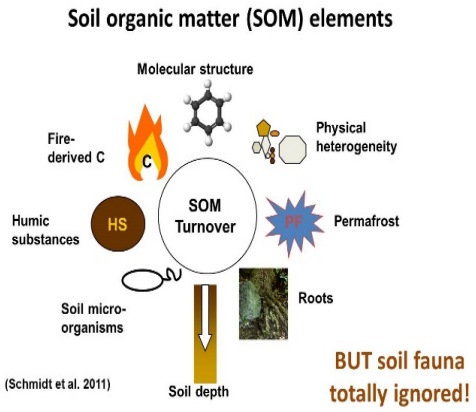
Key to Soil Organic Matter Dynamics and Modelling (KEYSOM)

Objective

The aim of the Action is to specifically, implement the role of soil fauna into existing SOM models for land use and natural resource management. Based on this a set of recommended agricultural practices for reducing depletion of SOM will be launched. This ambitious goal will be achieved by bringing together a community of soil experimentalist researchers and soil fauna specialists with demonstrated experience in designing and conducting SOM experiments, and by deriving how the experimental impacts of SOM and soil fauna manipulation can be measured and modelled. The Action will (1) identify knowledge gaps in existing data and SOM models, ii) establish the role of the soil fauna in SOM turnover from local (land use and disturbance) to global scales (geology, climate), iii) share and compile information from the different projects at the national level, and iv) provide training for young scientists. This Action will have a highly multidisciplinary profile, including areas like plant-, soil- and community ecology, microbiology, biogeochemistry, modelling and data management. It will thus provide comprehensive view on how the soil fauna – SOM interaction impacts on ecosystem processes in terrestrial ecosystems, including guidelines of how they should be studied. SOM – soil fauna interaction research is particularly challenged with the complexity the multivariate drivers and non-linear responses of the processes under study.

Abstract

Soil is a non-renewable ecosystem resource under seriously pressure by land use, urbanisation and climate change. Soil organic matter (SOM) is key to soil fertility, climate change mitigation, combatting land degradation, and the conservation of above- and below-ground biodiversity and associated ecosystem services.
Existing models of SOM dynamics are defined mostly in terms of plant residues input and microbial decomposition, overlooking the important contribution of soil fauna activity. Here, we bring biogeochemists and soil ecologists together to develop a research network for improved SOM models by implementing the role of the soil fauna as a basis for sustainable soil management. An international interdisciplinary approach within a COST Action is envisaged as the proper platform for both experimentalists and modellers to provide solutions. Deliverables will be provided through workshops addressing key challenges in SOM / soil fauna experimentation and modelling, support of research exchange, education of young scientists and better access to experimental data.



Keywords: soil fertility, soil fauna, land use and management, soil organic matter modelling, climate change

Working Groups

WG1 Network: sharing data and information, state-of-the-art and gap analysis of SOM – soil fauna interactions
WG2 Review and evaluation of existing global SOM models
WG3 Assembling data and meta-data
WG4 Dissemination of results from analyses, knowledge management and material for training and stakeholder purposes

Near Neighbour Country (NNC): Republic of Moldova, Russia
International Partner Country (IPC): USA

ES1407

European network for innovative recovery strategies of rare earth and other critical metals from electric and electronic waste (ReCreew)

Objectives

The main objective of the COST Proposal is to establish a pan-European network of research and industry partners to promote the recovery of CM from WEEE in Europe by consolidation of knowledge and development of optimised recovery processes in order to guarantee the sustainable supply for innovative European GT, ICT and renewable energy industries as well as life sciences.

Abstract

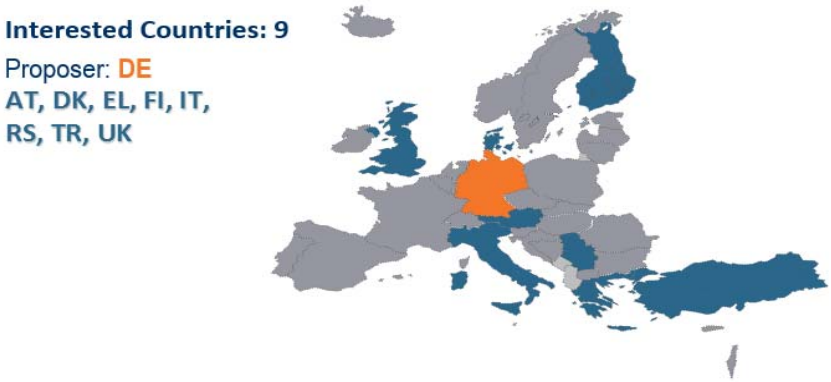
Critical metals (CM) which include rare earth metals (REM) are essential and important for the production of electrical and electronic equipment. An increasing demand for green and information technology products could lead to a scarcity of these resources in future and a dependency on a very few supply countries.
Currently the extraction of CM from ores is energy intensive and involves environmental risks due to the toxic chemicals involved. An alternative source for CM is Waste Electrical and Electronic Equipment (WEEE).
Through the currently applied recycling processes of this complex waste stream REM are lost completely. Moreover, inadequate recycling approaches in developing countries are causing severe sanitary and environmental damages. Hence, it is essential to develop effective and ecologically sound systems, including concerted collection, pre-treatment and refining processes for an utmost efficient recovery. Due to these manifold challenges the recovery of CM from WEEE cannot be solved on a national level. Experts from all process phases should create an interdisciplinary, transnational alliance in the pan-European context. Against this background the proposed COST Action ReCreew aims to create a European network for innovative CM recovery in order to support the supply of European industries while reducing environmental hazards on global scale.

Keywords: Waste electrical and electronic equipment (WEEE), rare earth metals (REM), critical metals, interdisciplinary approach, network, sustainable recovery, recycling, bio-metallurgy, sanitary and environmental hazard, risk assessment, technology

Working Groups

WG1 Information and Knowledge Management
WG2 Collection
WG3 Pre-treatment
WG4 Advanced treatment / Refining
WG5 Assessment
WG6 Global aspects”

Near Neighbour Country (NNC): Jordan, Russia



ES1408

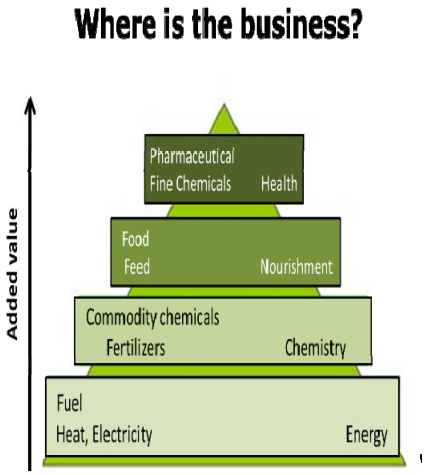
European Network for Algal-bioproducts (EUALGAE)

Objectives

This COST Action Proposal aims at the establishment of a European network sharing a common goal: development of an economical feasible model for the commercialization of algae-based bioproducts. EUALGAE is created to stimulate not only interaction among research groups across Europe but also to foster cooperation between academia and industry. EUALGAE is designed to establish a scientific platform to generate a synergistic approach for utilization of microalgae biomass for sustainable fuels and chemicals through cooperation between scientists from different member states and different areas and disciplines.

Abstract

Fossil fuel covers the majority of our energetic and chemical needs. However, fossil fuels are limited and the petrochemical industry has a negative impact on the environment. Biomass, as a renewable source, is attracting worldwide attention to satisfy this demand in the so-called bioeconomy. Conventional biomass feedstocks remain controversial due to the limited land availability and competition with food and feed production. Microalgae represent a promising alternative renewable source since they can be cultivated on non-arable land. Furthermore, microalgae remove and recycle nutrients from wastewater and flue-gases, thus providing additional environmental benefits. Investigating the production of non-fuel products could play a major role in turning economic and energy balances more favorable. Microalgae offer interesting applications in the nutrition field being high in antioxidants, pigments, polyunsaturated fatty acids and proteins. This COST Action proposes the establishment of a European network sharing a common goal: development of an economical feasible model for the commercialization of algae-based bioproducts. EUALGAE is created to stimulate not only interaction among research groups across Europe but also to foster cooperation between academia and industry. This scientific platform will generate a synergistic approach for utilization of microalgae biomass for sustainable fuels and fine chemical products.



Keywords: Microalgae, bioproducts, biofuel, harvesting, photobioreactor

Working Groups

WG1 Microalgae growth optimization and population dynamics.
WG2 Microalgae harvest and cell wall disruption
WG3 Refining of microalgae into its value components
WG4 Valorization of intermediates and subproducts
WG5 Life Cycle Assessment (LCA)

International Partner Country (IPC): Mexico, New Zealand, USA

FA1405

Using three-way interactions between plants, microbes and arthropods to enhance crop protection and production

Objectives

The main objective of the COST Proposal is to coordinate and develop research on three-way interactions between crops, arthropods and microbes and to use this knowledge to foster novel strategies and products for crop protection and production. The Action will emphasise basic and applied research on beneficial effects of microbes on crop resistance, and on opportunities to predict and manipulate interactions between crops, arthropods and microorganisms (CAMos) to improve crop yields of tomato and oilseed rape with insight from other systems. The aim is also to build a strong future base for research and development within this field by committed involvement and collaboration of female and younger researchers from academia and the R&D sector. Therefore, this Proposal aims to place Europe at the forefront of the emerging field of CAMo interactions and their applications.

Abstract

Crop plants interact with both arthropods and microorganisms, including pests that reduce yields (in Europe up to 20% annually) and mutualists that promote yield. Direct and indirect interactions between microorganisms and arthropods on crops can strongly modify their impacts on yield. For instance, herbivores and pathogens can facilitate each other, causing additional yield loss. On the other hand, beneficial microorganisms can induce defenses that protect plants against herbivores. There is thus potential to enhance crop production and reduce pesticide use if we can better predict and manage Crop-Arthropod-Microorganism (CAMo) interactions to our advantage. Currently, knowledge of CAMo interactions is limited due to historical separation of the involved research fields. The proposed COST Action will therefore combine existing expertise on CAMo interactions in Europe, from basic and strategic research to agri-R&D companies, and form an interdisciplinary platform and incubator for research on mechanisms, impacts and utilization of CAMo interactions on crop yield. The proposed COST Action will also strengthen the careers of both female and young researchers, connect the newest research in the field with its applied use, and develop new monitoring and management support systems and CAMo-based applications.

Keywords: Plant-arthropod-microorganism interactions, pest and disease management, plant growth and defense promoting microorganisms, plant production

Working Groups

WG1 CAMo's and their impact on crop yield
WG2 Mechanisms underlying CAMo interactions
WG3 Utilization of CAMo interactions

FA1406

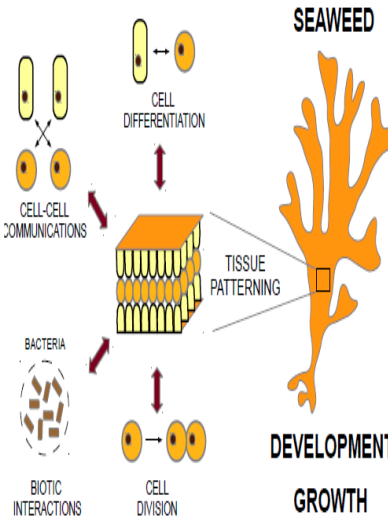
Advancing knowledge on seaweed growth and development

Objectives

The main aim of the COST Proposal is to unify a scattered European research landscape to enable a step-change in the basic knowledge of seaweed reproduction and development, and to ensure appropriate and efficient transfer to R&D and Innovation Institutes dedicated to the development of aquaculture techniques, in tune with current needs in Europe and worldwide. Consequently, the Action will undertake for the first time a strictly interdisciplinary approach, combining molecular/developmental biology, genetics, and analytical chemistry.

Abstract

Seaweeds (macroalgae) are an alternative, additional source of food, feed, fuel and livelihood for humans. Currently 16M tonnes of seaweeds are collected annually for consumption or industrial processing. Production could increase, especially in Europe (only 7% of the world's production), with more appropriate and efficient seaweed cultivation techniques, to match actual and future demands. This requires a step-change in knowledge of basic seaweed biology (currently almost non-existent), to prevent restricting future increases in seaweed production.
This proposed COST Action will develop a European interdisciplinary platform integrating unique expertise, currently scattered worldwide, to (1) fill basic research gaps on seaweed development and reproduction, and (2) transfer this scientific knowledge to aquaculture end-users to support sustainable seaweed aquaculture. Academic partners highly skilled in seaweed basic research, and RTD and Innovation Institutes dedicated to the transfer of knowledge to end-users, will coordinate and promote research through 4 major scientific tasks:
1. Identifying how seaweeds become REPRODUCTIVELY PROFICIENT;
2. Defining mechanisms of FERTILISATION AND EMBRYOGENESIS;
3. Studying the kinetics and morphological principles of ADULT GROWTH;
4. Developing TECHNICAL TOOLS to drive Tasks 1-3.
This will be achieved via workshops, short-term scientific missions, training schools and symposia, and deployment of communication tools optimising the transfer from basic research to innovation.



Keywords: seaweeds, growth and development, reproduction, knowledge transfer, aquaculture

Working Groups

WG1 Fertility Induction
WG2 Reproduction and Initiation of New Generations
WG3 Towards Adult Growth
WG4 Development of Technical Tools

International Partner Country (IPC): Canada, India, Japan, USA

FA1407

Application of next generation sequencing for the study and diagnosis of plant viral diseases in agriculture

Objectives

The main objective of the proposed COST Action is to is to coordinate and raise the European capacity to apply Next Generation Sequencing (NGS) technologies for the study and diagnosis of viral diseases in vegetatively propagated plants, seeds and seedlings and other matrices (insect, water, soil)..

Abstract

The objective of the Proposal is to coordinate and raise the European capacity to apply Next Generation Sequencing (NGS) technologies for the study and diagnosis of viral diseases in vegetatively propagated plants, seeds and seedlings. The Proposal is highly timely and needed because viral diseases are currently a major economic problem in agriculture throughout the world. The increasing importance of vegetative propagation in plant production and the intensified global plant trade are further increasing the risk of viral diseases in Europe. NGS enables rapid and reliable holistic virus identification (indexing), which is needed for the development of innovative, knowledge-based solutions for plant production. By bringing together a multidisciplinary and multi-actor consortium, the proposed COST Action will ensure cost-effective research and build up a strong Pan-European knowledge-based network for better control of established, emerging and exotic viral plant diseases. The Action will deliver new scientific knowledge about viral plant diseases that are currently poorly understood, and contribute to the development of more effective surveillance of stock material health and to the improvement of quarantine procedures. The proposed Action thus implements the EU strategy of integrated pest management and protection against harmful plant pathogens and contributes to the securement of food production.

Keywords: plant virus, diagnostic, high throughput sequencing

Working Groups

WG1 Comparison of NGS protocols for virus diagnostic and standard recommendations
WG2 Etiology of viral diseases and biological impact of newly discovered viruses or virus-like agents
WG3 Taxonomy and viral population genetics
WG4 Regulatory and socio-economic impact

FA1408

A European Network for Foodborne Parasites (Euro-FBP)

Objectives

The main objective of EURO-FBP is to decrease the impact on human health from foodborne parasites (FBP) through establishing a risk-based control programme for FBP containing robust and appropriate protective strategies. EURO-FBP will use an interdisciplinary, One Health perspective to assimilate information, coordinate research and harmonize diagnostics, surveillance, analytical methods, potential interventions and mapping of global trends regarding FBP, as well as determine those FBP of greatest regional importance, pinpoint knowledge gaps, and focus resources strategically for control of FBP in Europe - and globally.

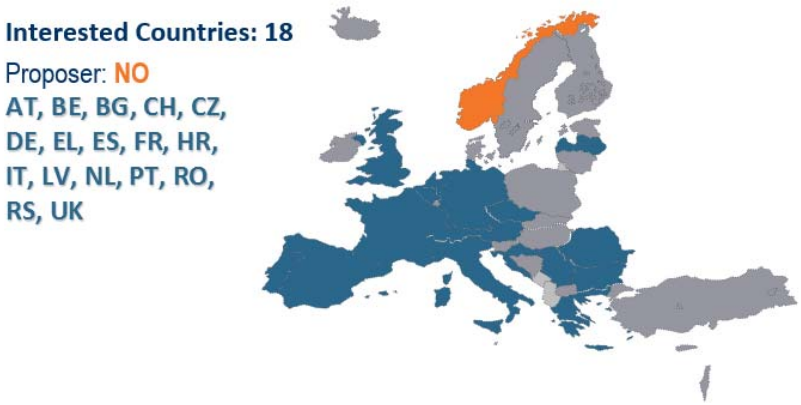
Abstract

The main objective of EURO-FBP is to decrease the impact on human health from foodborne parasites (FBP), through establishing a risk-based control programme for FBP containing robust and appropriate protective strategies. EURO-FBP will use an interdisciplinary, One Health perspective to assimilate information, coordinate research and harmonize diagnostics, surveillance, analytical methods, potential interventions and mapping of global trends regarding FBP. The proposed COST Action will determine those FBP of greatest regional importance, pinpoint knowledge gaps, and focus resources strategically for control of FBP. FBP include protozoa, nematodes, cestodes and trematodes. Although a significant public health issue, FBP have been neglected compared with other foodborne pathogens such as viruses or bacteria. Furthermore, globalisation and changes in climate, agricultural practices, and human behaviour and lifestyles all contribute to emergence of FBP in new settings, with new hosts and transmission routes. Previously associated with specific regions, FBP are now spreading. FBP research is fragmented and groups often focus on a single genera or group of parasites. Hence COST is ideal for EURO-FBP, enabling collaboration among scientists that rarely interact. The agenda will focus on how to address FBP, optimising efforts and resources in order to control FBP in Europe - and globally.

Keywords: Foodborne parasites, transmission, surveillance and control, epidemiology and One Health, future trends

Working Groups

WG1 Region-specific ranking of FBP and current surveillance systems
WG2 Analytical and Diagnostic Methods for FBP
WG3 Interventions
WG4 Global trends, risk assessment and research agenda consolidation and prioritisation



FP1405

Active and intelligent (fibre-based) packaging - innovation and market introduction [ActInPak]

Objectives

The main objective of the proposed COST Action is the development of a knowledge-based network on sustainable, active and intelligent fibre-based packaging in order to overcome current technological, industrial, and social limitations that hinder the wide deployment of existing and newly developed solutions in actual market applications.This Action Proposal will go further than research and development, as it aims for deployment and to identify the key technical, social, economic and legislative factors for a successful market introduction. By identifying the opportunities for, and obstacles to market introduction it is possible to close the gap between science and industry. Although it is challenging to predict whether such limitations can be overcome, particularly when those limitations are not yet fully known, this COST proposed Action will establish a value chain wide platform of both scientists and industrial experts that provides insights into those factors influencing the market introduction of novel sustainable, active and intelligent fibre-based packaging.

Abstract

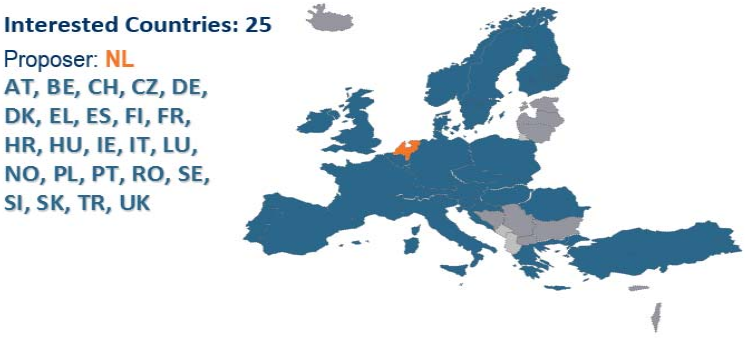
Research and development of new fibre-based packaging materials with active and intelligent features have shown huge potential to optimise the supply chain, and increase the shelf-life of foodstuff and enhance consumer consciousness of food utilisation. Very few of the potential solutions have, however, been able to reach the market.
This COST Proposal aims to identify and focus on the key technical, social, economic and legislative factors relevant for a successful deployment of renewable fibre-based functional packaging solutions. This will be achieved by conducting research and development into active and intelligent packaging, encompassing both scientific and technical solutions, addressing the opportunities for, and obstacles to, market introduction. The innovative approach of this Action lies in the sharp focus on the integration of active and intelligent solutions in papermaking in order to create next-generation functional fibre-based packaging. The proposed Action will achieve the objectives by providing an open multidisciplinary platform for the complete paper and board packaging value chain and aims at strong involvement of industrial partners throughout Europe. Sustainable fibre-based packaging materials with new and active functionalities may help to introduce new products on the market with higher value and profits for paper and board manufacturers than traditional products.

Keywords: fibre-based products, active and intelligent packaging, market introduction, industry, value chain

Working Groups

WG1 Development/Innovation
WG2 Industrialisation/Market introduction
WG3 LCA/Sustainability issues, health and safety
WG4 Knowledge transfer and dissemination

International Partner Country (IPC): Japan, New Zealand



FP1406

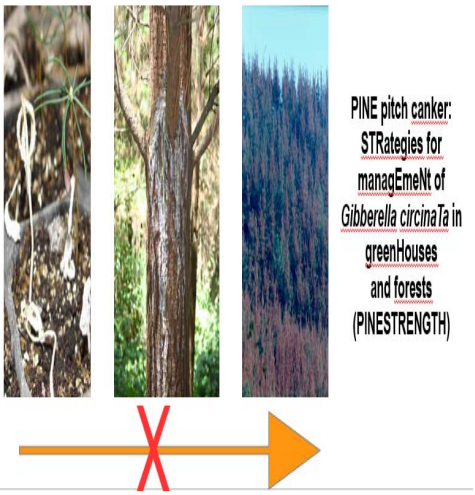
PINE pitch canker: STRategies for managEmeNt of Gibberella circinaTa in greenHouses and forests (PINESTRENGTH)

Objectives

The aim of the PINESTRENGTH COST Proposal is to collect and collate the current state-of-art knowledge on pitch pine canker caused by Gibberella circinata, in order to increase understanding of the problem and the pathogen so that plans for the integrated management of pine pitch canker and to reduce the probability of further introductions into currently disease-free countries, can be established in Europe.

Abstract

Gibberella circinata is a highly virulent pathogen damaging pines, causing damping-off in nurseries and pitch canker in forests. It was first detected in North America, since when the pathogen has spread into Central and South America, South Africa, Asia and, more recently, Europe. G. circinata is now considered the most important pathogen affecting Pinus seedlings and mature trees in many countries globally; asymptomatic seedlings may be planted out, resulting in very serious losses in forests. Nevertheless, there has been little research on G. circinata in Europe to date and little information is available overall on host range in Europe, pathogen spread and disease control. The main aim of this proposed Action is to establish a European-focused network to increase knowledge of the biology, ecology and pathways of spread of G. circinata, to examine the potential for the development of effective and environmentally-friendly prevention and mitigation strategies and to deliver these outcomes to stakeholders and policy makers. To that end, a multidisciplinary approach will be taken, including researchers, forest managers and policy makers from (initially) 27 countries focused on the common problem of pitch canker, making PINESTRENGTH highly innovative.



Keywords: Fusarium circinatum, pine forests, nurseries, biological control, silvicultural management, forest diseases

Working Groups

WG1 The pathogen: diagnosis
WG2 Interactions with other forest pests and pathogens
WG3 Pathway of disease spread
WG4 Pest risk analyses
WG5 Management of the disease in forest and nurseries
WG6 Coordination, identifying research gaps and dissemination

International Partner Country (IPC): Chile, South Korea, New Zealand, USA, South Africa

FP1407

Understanding wood modification through an integrated scientific and environmental impact approach (ModWoodLife)

Objectives

The main aim of this COST proposed Action is to characterize the relationship between modification processing, product properties, and the associated environmental impacts. This includes the development and optimization of modified processing and quantification of the impacts of emerging treatment technologies compared to traditional processing and alternative materials to maximize sustainability and minimize environmental impacts.

Abstract

The forest-based sector can become a leader in achieving the European Commission's ambitious target of reducing CO2 emissions with innovative production technologies, reduced energy consumption, increased wood products recycling, and reuse. Apart from these undoubted environmental benefits, the use of forest products in long life products, such as built environment applications, allows for the possibility of extended storage of atmospheric carbon dioxide. Wood modification (chemical, thermal, impregnation) is an assortment of the innovative processes currently being adopted. Though many aspects of these treatments are known, the fundamental influence of the process on product performance, the environment, and end of life scenarios remain unknown. It is essential to integrate interactive assessment of process parameters, developed product properties, and environmental impacts. To optimize modification processing to minimize environmental impacts, much more information must be gathered about all process related factors affecting the environment (VOC, energy use, end of life use, etc.). This COST Proposal will investigate modification processing and products design with emphasis on their environmental impacts. This will require analysis of the whole value chain, from forest through processing, installation, in-service, end of life, second/third life (cascading) and ultimately incineration with energy recovery.

Keywords: Modification, processing, LCA, EPD, cascading

Working Groups

WG1 Product Category Rules
WG2 Life Cycle Assessments
WG3 Environmental products declarations
WG4 Integration, dissemination and exploitation

International Partner Country (IPC): Canada, Chile, New Zealand, USA

IS1406

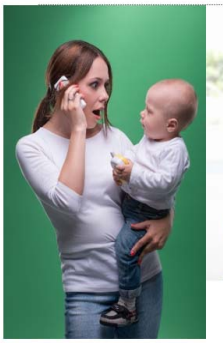
Enhancing children's oral language skills across Europe and beyond: a collaboration focusing on interventions for children with difficulties learning their first language

Objectives

The main objectives of the proposed COST Action are to increase the effectiveness of interventions for children with Language Impairment and improve understanding of the context in which those interventions are delivered.

Abstract

Oral language (speaking and understanding) is critical to children's development, affecting the emergence of personal, social and academic skills throughout school and into the workplace. Most children acquire such skills effortlessly but a sizeable proportion, those with Language Impairment (LI), do not. LI affects 5.8 million children and young people (0-18 years) across Europe. There is evidence for the efficacy and effectiveness of intervention to improve the language skills of these children but this information is not well disseminated and services are inconsistent across Europe. This proposed Action will enhance the science in the field, improve the effectiveness of services for children with LI and develop a sustainable network of researchers well placed to answer the key questions in this area.
This activity has never been attempted before despite there being services for these children in all European countries. The COST framework is the ideal mechanism for catalysing activity to promote research collaboration and produce to high quality outputs.



The development of oral language skills starts early

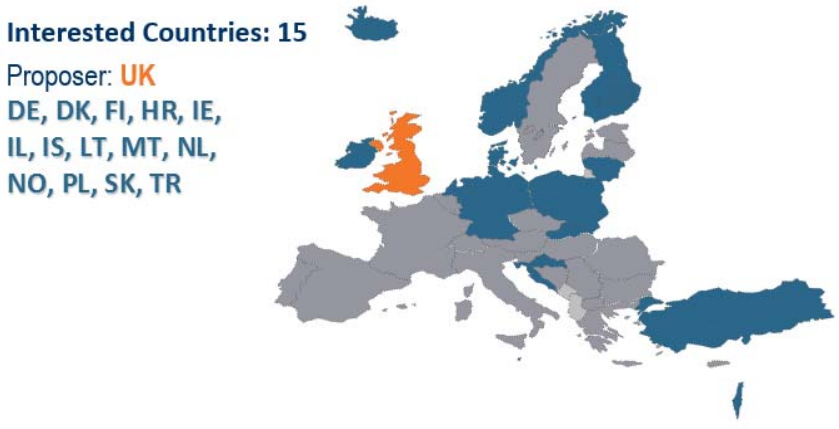
Its a family thing: there are all sorts of ways of encouraging language development

Keywords: Child language, Language impairment (LI, Intervention approaches, Psychological underpinnings for interventions for LI, Linguistic underpinnings for interventions for LI Delivery of services for LI, Social and cultural context of interventions for LI

Working Groups

WG1 The linguistic, psychological and educational underpinning of interventions for LI
WG2 The delivery of intervention for LI across childhood (0-18 years)
WG3 The social and cultural context of intervention for LI

International Partner Country (IPC): Australia, Canada, USA



IS1407

Ancient European Languages and Writings (AELAW)

Objectives

The main objective of the proposed COST Action is the co-ordination of researchers dedicated to the study of the different ancient European languages and writings with the aim of creating an ample work team capable of establishing the foundations for the creation, for the first time, of a large online databank which will permit the cataloguing of all the currently known documents in this type of languages, thus introducing this important part of the European cultural heritage into the 21st century.

Abstract

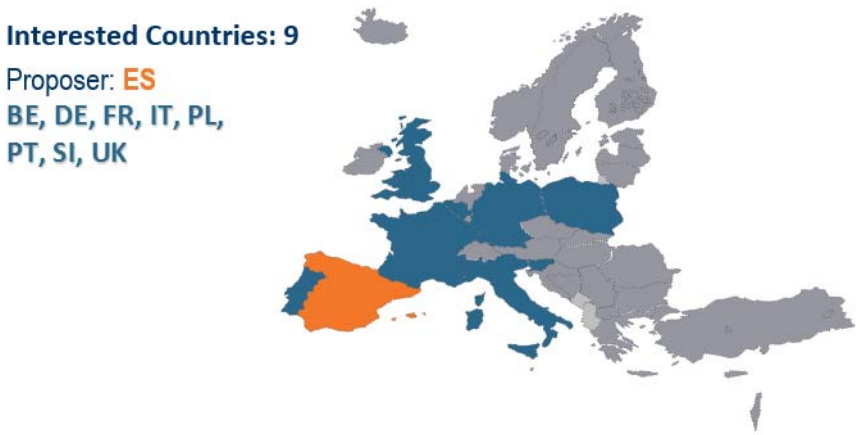
There is written evidence of about twenty fragmentary ancient European languages. Of these some 20,000 documents are conserved on stone, metal or pottery in diverse systems of writing, some of which have not been completely deciphered yet.
Research into them requires specialists in historical and philological-linguistic matters and these suffer from a pronounced geographical dispersion according to their geographical field of study (Gaul, Hispania Italy, the North of Africa) or to their corresponding linguistic family (Latin, Celtic, Italic, other minor Indo-European branches, Basque, ...).
The main objective of the proposed Action is the co-ordination of researchers dedicated to the study of the different ancient languages and writings with the aim of creating an ample work team capable of establishing the foundations for the creation, for the first time, of a large online data bank which will permit the cataloguing of all the currently known documents in this type of languages, thus introducing this important part of the European cultural heritage into the 21st century.

"The tessera Froehner, a Celtiberian tessera hospitalis (1st cent. BCE)"

Keywords: Ancient Languages, Ancient Writings, Epigraphy, Linguistic Contact, Cultural Heritage, European Identity, Online Data Bank

Working Groups

WG1 Census of Inscriptions in Italy
WG2 Census of Inscriptions in Western Europe
WG3 Scientific Criteria and Protocols for the Edition of Inscriptions
WG4 Design and Technical Aspects of the Online Databank



IS1408

Industrially Contaminated Sites and Health Network (ICSHNet)

Objectives

The main objective of the proposed COST Action is to develop a common framework for research and response on environmental health issues in industrially contaminated sites, and establish a European network of experts and institutions involved in assessing the health impacts and/or managing remediation and response. Through expert networking, conferences, workshops, training and dissemination activities, this proposed COST Action will: clarify needs and priorities; support collection of available information, methods and data; promote shared initiatives and develop guidance and resources on risk assessment, management and communication across Europe; allow a comparative reading and interpretation of existing data on health of citizens who live in contaminated sites; create the conditions for the undertaking of comparable health impact assessments of contaminated sites in Europe and beyond.

Abstract

In Europe, earlier industrialization and poor environmental management practices have left a legacy of thousands of contaminated sites. Past and current industrial activities can cause local and diffuse contamination, to such an extent that it might threaten human health of resident populations, especially in vulnerable subgroup. Moreover, health, environment, and social aspects are strongly interconnected, local communities are often alarmed, and both scientists and policy makers have expressed concern. Distinct research initiatives on the health impact of contaminated sites have provided considerable evidence, however data are sparse, and assessments have seen a fragmentation of objectives and methods. It is therefore urgent to promote coordination and collaboration between researchers and risk managers to identify common strategies at European level to deal with this issue more systematically.
This Proposal aims at establishing and consolidating a European Network of experts and relevant institutions, and developing a common framework for research and response through conferences, workshops, training and dissemination activities.
The Network will: clarify knowledge gaps and research priorities; support collection of relevant data and information; stimulate development of harmonised methodology; promote collaborative research initiatives, and develop guidance and resources on risk assessment, management and communication.

Keywords: Human health, industrially contaminated sites, environmental justice and inequalities, health risk-assessment, risk communication

Working Groups

WG1 Environmental and health data
WG2 Methods and tools for exposure assessment
WG3 Methods and tools for health risk and health impact assessment
WG4 Risk management and communication

IS1409

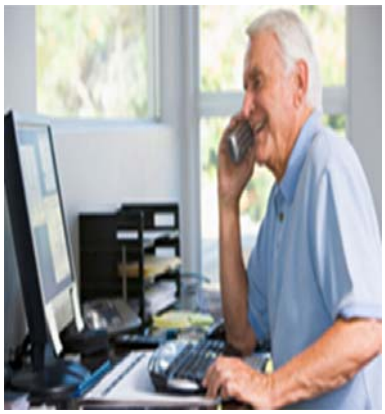
Gender and health impacts of policies extending working life in western countries

Objectives

The primary objectives of this COST Proposal are: (1) To advance scientific knowledge about the gendered impact of extended working life on the health and economic well-being of older workers in Europe, using a cross-national comparative approach and by integrating different disciplines and approaches including gender studies, the sociology of work, feminist economics, social gerontology, life course studies and social policy. (2) To develop collaborations with public policy officials, trade unions, international policy bodies (e.g. Eurofound [European Foundation for the Improvement of Living and Working Conditions] and the ILO [International Labour Organisation]), civil society NGOs, and older workers themselves. This proposed Action is not intended to embark on new data collection, but rather to fully exploit existing data by sharing existing knowledge and developing new gender-sensitive measures of economic well-being and health, and by sharing expertise in the variable construction and analysis using extant life course data instruments.

Abstract

The goal of this proposed Action is to advance scientific knowledge about the gendered impacts of extended working life on the health and economic well-being of older workers in Europe and to support informed gender-sensitive future policy, explicitly considering the differential needs of women and men. This requires exploring the differential impacts that such policy may have for the health and economic well-being of diverse groups of older workers, using a life course perspective which has been identified as an innovative approach to analysing policy impacts. While life course analysis of pensions has been employed in some COST countries, there is a need to build a research network to develop capacity in life course methods and in gender-aware policy analysis to enable accurate, timely, multi-disciplinary, cross-national analysis of employment policy and practice for older workers. Expected deliverables include: (a) creating a website; (b) depositary database of scientific measures and policy tool-kits; (c) facilitating training schools, Short Term Scientific Missions and conferences; (d) disseminating scientific reports, proceedings, academic publications, policy papers and an edited book on extended working life, health and gender. This Action is both timely and policy-relevant, due to the pressing European phenomenon of demographic ageing, the piecemeal state of current research, and to develop appropriate and equitable policy in COST countries.

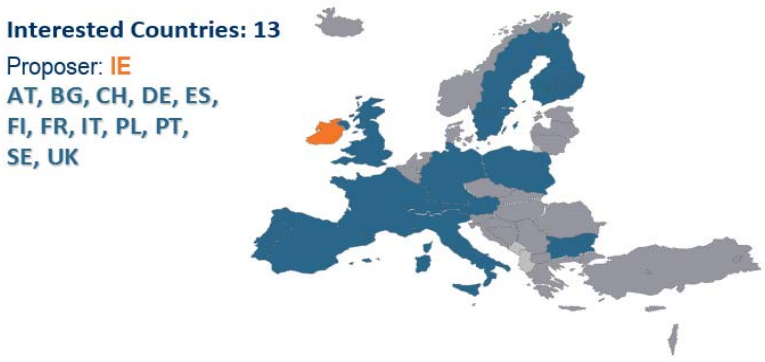


Keywords: Extended working life policies; gender analysis; health and economic well-being impacts; life course approach

Working Groups

WG1 Mapping existing knowledge and identification of critical themes for gender and older workers
WG2 Analyses of national 'late work' employment policies
WG3 Identification and mapping of national and international databases for people aged 50 and over
WG4 Development of policy tool-kits, identification of innovative policies and good practice

International Partner Country (IPC): Australia, Canada, New Zealand



IS1410

The Digital Literacy and Multimodal Practices of Young Children (DigiLitEY)

Objectives

The main objective of the proposed COST Action is to create an interdisciplinary network that will advance understanding of young children´s digital literacy and multimodal practices in the new media age and which will build a co-ordinated European agenda for future research in this area. It will develop Early Stage Researchers´ (ESR) capacity for future work and will strengthen further the already leading position of Europe in this field. The Action will engage with policy makers in order to ensure impact on policy and practice with regard to parental support, early years´ schooling and informal education in museums, libraries and community spaces, reflecting a multifaceted approach to enhancing the digital literacy skills and future capacities of young children in Europe.

Abstract

The ability to negotiate digital forms of literacy carries high stakes for life destinations but in early childhood education, literacy still tends to be approached as predominantly print-based. The technologies through which children now engage with all forms of knowledge are constantly changing with the widespread use of an array of digital, interactive, converged and personalised devices. These are transforming the skills and literacies needed by even the youngest children to be competent actors in the world while, at the same time, challenging the efforts of parents and teachers to support their learning. The development of relevant skills and knowledge for reading and writing contemporary texts is crucial for educational, economic, social and cultural progress in Europe. The proposed Action will create an interdisciplinary network to examine how young children's literacy development is being shaped by changes brought about by the digitisation of communication. The Action will enable researchers across COST countries collectively to synthesise existing research and identify gaps in knowledge, thus avoiding duplication, fostering innovative avenues for future research and more effectively advancing knowledge in this area. The Action will also build capacity by facilitating systematic exchange between established and early stage researchers across the network.

Keywords: digital literacy, early childhood, multimodality, media literacy, new technologies

Working Groups

WG1 Young children's digital literacy and multimodal practices in homes and communities
WG2 Young children's digital literacy and multimodal practices in early years settings and schools and in informal learning spaces
WG3 Reading and writing on screen
WG4 Young children's online digital literacy practices and their relationship to offline literacy practices
WG5 Methodologies and ethics for research on digital literacy

International Partner Country (IPC): Australia, Singapore, USA

IC1405

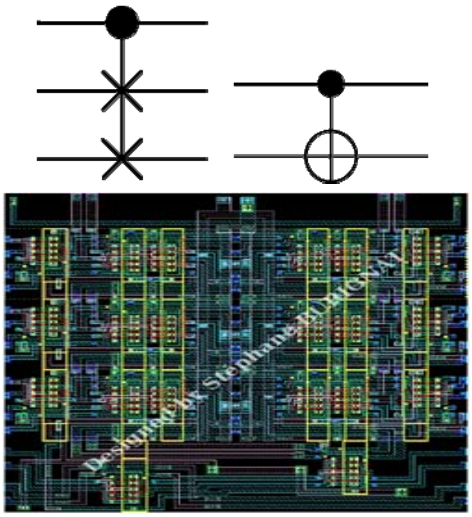
Reversible Computation: extending horizons of computing

Objectives

The overall goal of the COST Proposal is to establish the first European network of experts aiming at the development of reversible computation as means for safer, more reliable and recovery-oriented distributed software and systems, and, ultimately, for low-power computing.

Abstract

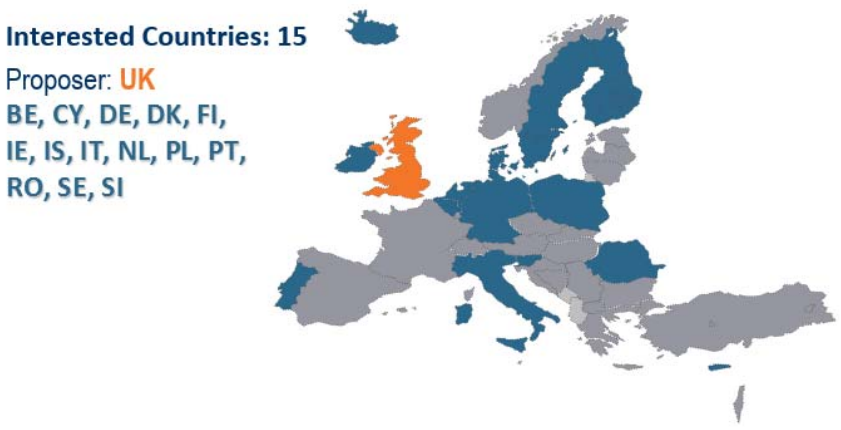
Reversible computation is an emerging paradigm that extends the standard forwards-only mode of computation with the ability to execute in reverse, so that computation can run backwards as naturally as it can go forwards. It aims to deliver novel computing devices and software, and to enhance traditional systems by equipping them with reversibility. The potential benefits include the design of revolutionary reversible logic gates and circuits - leading to low-power computing and innovative hardware for green ICT, and new conceptual frameworks, language abstractions and software tools for reliable and recovery oriented distributed systems.
Landauer's Principle, a theoretical explanation why a significant proportion of electrical power consumed by current forwards-only computers is lost in the form of heat, and why making computation reversible is necessary and beneficial, has only been shown empirically in 2012. Hence now is the right time to launch a COST Action on reversible computation. The proposed Action will establish the first European (and the world first) network of excellence to coordinate research on reversible computation. Many fundamental challenges cannot be solved currently by partitioned and uncoordinated research, so a collaborative effort of European expertise with an industrial participation, as proposed by this Action, is the most logical and efficient way to proceed.



Keywords: Physical and logical reversible computation; models of reversibility: automata and process calculi; reversible algorithms, programming languages and software architectures; reversible and quantum logics and circuits

Working Groups

WG1 Foundations
WG2 Software and Systems
WG3 Reversible Circuit Design
WG4 Case Studies



IC1406

High-Performance Modelling and Simulation for Big Data Applications (cHiPSet)

Objectives

The main objective of the COST Proposal is to create a long-lasting, sustainable, reference network of research links amongst the High Performance Computing (HPC) and the multiple Modelling and Simulation (MS) research communities addressing Big Data (BD) problems. Such links will enable a novel permanent collaboration framework across HPC and MS, covering both academia and industries in Europe and with links to overseas partners. Such collaboration does not currently exist in a mature and extensive form, but is nowadays crucial in successfully addressing problems in the cross-discipline Big Data scenario: huge availability of raw data to be transformed into useful knowledge. On the other hand, there is a gap widening for new implementations of memory-demanding applications that have not yet been adapted for HPC environments, mainly because of a limited communication between field experts and those with respective skills for the parallel implementation of data intensive applications. Therefore, another natural objective of this proposed Action is to transfer in the intelligent way the heterogeneous workflows in Modelling and Simulation to HPC, what will boost those scientific fields that are essential for both MS and HPC societies. Benefits will be reciprocal. MS experts will be supported in their speculations by properly-enabled HPC frameworks, currently sought but missing.

Abstract

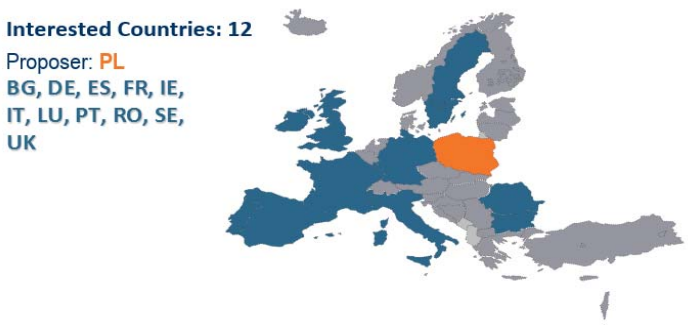
The Big Data era poses a critically difficult challenge and striking development opportunities in High-Performance Computing (HPC): how to efficiently turn massively large data into valuable information and meaningful knowledge. Computationally effective HPC is required in a rapidly-increasing number of data-intensive domains, such as Life and Physical Sciences, and Socio-economical Systems.
Modelling and Simulation (MS) offers suitable abstractions to manage the complexity of analysing Big Data in various scientific and engineering domains. Unfortunately, Big Data problems are not always easily amenable to efficient MS over HPC. Also, MS communities may lack the detailed expertise required to exploit the full potential of HPC solutions, and HPC architects may not be fully aware of specific MS requirements.Therefore, there is an urgent need for European co-ordination to facilitate interactions among data-intensive MS and HPC experts, ensuring that the field, which is strategic and of long-standing interest in Europe, develops efficiently - from academic research to industrial practice. This Action will provide the integration to foster a novel, coordinated Big Data endeavour supported by HPC. It will strongly support information exchange, synergy and coordination of activities among leading European research groups and top global partner institutions, and will promote European software industry competitiveness.

Keywords: High Performance Computing, Modelling and Simulation, Big Data, Dynamic Systems, Data Intensive Computing

Working Groups

WG1 Enabling Infrastructures and Middleware for Big-Data Modelling and Simulation
WG2 Parallel Programming Models for Big-Data Modelling and Simulation
WG3 HPC-enabled Modelling for Life Sciences
WG4 HPC-enabled Modelling for Socio-Economical and Physical Sciences

International Partner Country (IPC): Australia, China, USA



IC1407

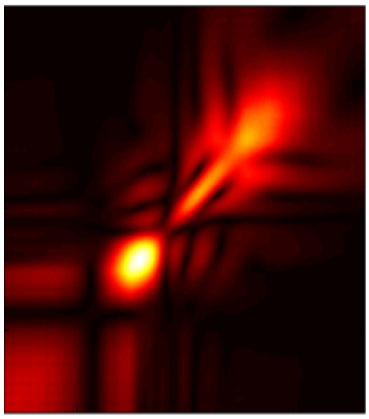
Advanced Characterisation and Classification of Radiated Emissions in Densely Integrated Technologies (ACCREDIT)

Objectives

The main aim of this COST Action Proposal is to develop experimental methods, computationally efficient software and equipment for characterisation, modelling and simulation of radiated transient EMI in high performance multifunction devices such as SiPs or SoCs.

Abstract

The growth of Internet-enabled smart infrastructures underpinning virtually every sector of economic and social life requires complex, high performance and highly integrated electronic systems. The electromagnetic interference (EMI) will increase with the anticipated increase of clock speeds, frequency of operation and circuit density. Immunity levels will also decrease due to lower supply voltages and lower signal power levels. Traditionally the potential EMI sources were assessed in the frequency domain assuming static emissions.
This is not valid for multifunctional devices with many operating modes and wideband digital receivers. New approaches that fully account for time dependence and uncertainty are needed.
This proposed COST Action will fully address the challenges of the stochastic and broadband nature of EMI in current and future complex multi-functional systems through a coordinated international research programme specifically aimed at:
• modelling approaches to include efficient behavioural models, propagation and interaction of stochastic field distributions.
• experimental methods including wideband near field probes and efficient time or frequency domain EMI measurement.
The COST format will be the critical enabler for initiating and consolidating structural collaboration of researchers from universities and industries in fundamental research on time domain, stochastic electromagnetic effects.

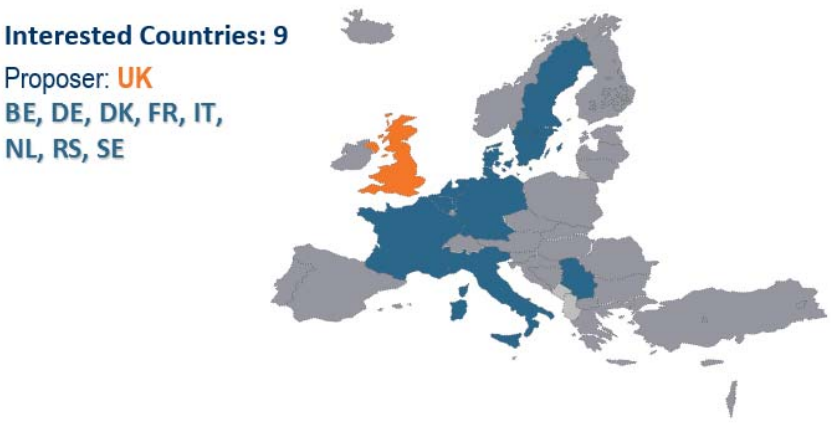


Keywords: Electromagnetic Compatibility, electromagnetic effects, electromagnetic interference, transients, stochastic fields, interoperability of systems.

Working Groups

WG1 Numerical methods for addressing the propagation of stochastic fields
WG2 Measurement of time domain stochastic near-field emissions
WG3 Equivalent models of noise sources
WG4 Guidelines for the formulation of standards

Near Neighbour Country (NNC): Russia
International Partner Country (IPC): USA



IC1408

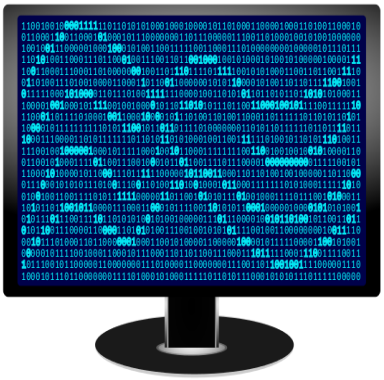
Computationally-intensive methods for the robust analysis of non-standard data (CRoNoS)

Objectives

The main objective of this Action Proposal is to coordinate activities directed to the development of fast, robust, and efficient solutions to extract accurate knowledge from non-standard and imperfect data satisfying the requirements of the end-users.

Abstract

Real data sets from a wide variety of fields violate the idealized assumptions inherent in standard statistical theory. Robust data analysis methodology aims to mitigate the impact of such violations. Robust methods are usually developed to handle multivariate data. However, monitoring studies often contain information such as functional, set-valued, or different kinds of incomplete data. Robust methods for these complex data types are scarce and involve critical computational challenges. New models, methods and efficient, numerically stable, and well-conditioned robust strategies are essential to improve knowledge extraction from non-perfect and non-standard datasets. Applications include the analysis of climate data, medical monitoring and diagnosis, trading and financial forecasts. The aim is to create an interactive network spanning computing, statistics, machine learning, and mathematics with the necessary expertise required to develop such strategies in close collaboration with end-users. Software and guidelines will be developed. The proposed Action will provide European scientists with cutting-edge data analysis tools which will be suitably disseminated by disparate means such as training schools, conferences and publications. Improved decision-making tools for preventing-mitigating policies will be derived. Thus, scientific, technological and social challenges will be tackled by the creation of a proper framework to coordinate and optimize research efforts.



Keywords: Robust methods, large non-perfect and non-standard datasets, numerical estimation, combinatorial optimization, parallel implementation, High-Performance Computing and software

Working Groups

WG0
WG1 Data management and applications
Models and methods
WG2 Computational tools
WG3 Resampling-based inferences
WG4 Software

International Partner Country (IPC): USA

MP1404

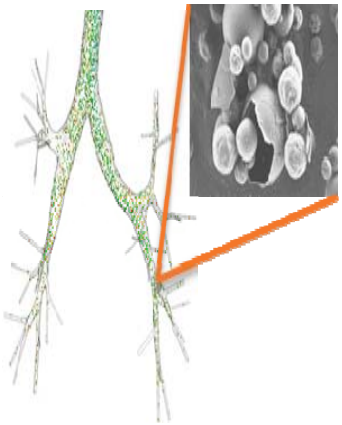
Simulation and Pharmaceutical Technologies for Advanced Patient-Tailored Inhaled Medicines (SimInhale)

Objectives

This COST Action Proposal will create and maintain a pan-European multidisciplinary scientific network that will coordinate and enhance research and development (R&D) in the field of inhaled medicines with the aim to accelerate the development of a new generation of effective and safe inhaled medicines. To achieve this overarching goal, the Action will a) seek to overcome knowledge compartmentalization and fragmentation, b) deliver best-practice advice to practicing engineers, scientists and health care professionals, c) establish research and technological priorities, d) deliver consolidated scientific knowledge to decision makers and regulators, e) compile valid and reliable information to be used in regulatory and certification frameworks. Through these high-level objectives the Proposal aims to enhance progress in the field of inhaled medicines, contributing to European scientific and technological excellence, with obvious benefits to society and the economy.

Abstract

As a result of the culmination of several scientific and technological developments, we are on the verge of technological breakthroughs in the field of inhaled medicines that will revolutionize the treatment of many acute or chronic respiratory and systemic illnesses. However, knowledge in the field is vertically fragmented and compartmentalized in disciplines. As a result, current developments are not necessarily synergistic and supportive of each other. The prospect of patient-tailored inhaled medicines necessitates a much closer coordination of research and development activities. SimInhale aims to create a pan-European network of experts in order to: i) advance particle designs for improved deposition and interaction with lung tissue, ii) promote realistic computer simulations of particle aerosolization, delivery and deposition, iii) promote patient-tailored inhaled medicines, iv) promote integration of device and formulation design, and v) promote critical assessment of toxicity issues and related risks. Making a new generation of advanced inhaled pharmaceuticals available to patients in a shorter period of time will have enormous social benefits. It will also have significant economic benefits, since it will advance pharmaceuticals with higher effectiveness and fewer side effects, thus reducing health care costs in the long run, and will help sustain innovation in the industry of inhaled pharmaceuticals and inhaler devices.

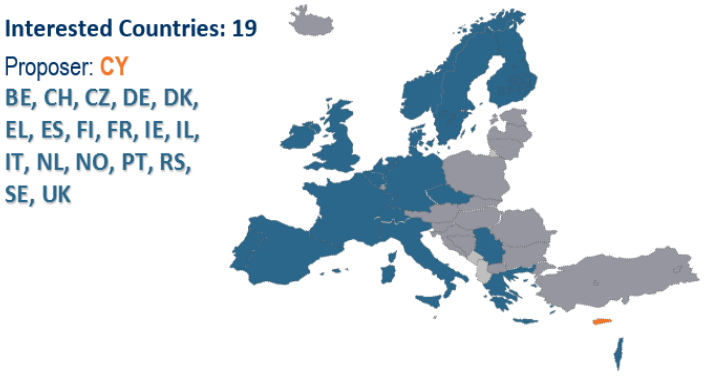


Keywords: inhaled medicines and inhaler devices, pulmonary delivery, therapeutic proteins and vaccines, computer simulations, toxicity-related risks

Working Groups

WG1 Particle engineering/processing of inhaled medicines for local/systemic action
WG2 Device engineering and formulation-aware inhaler design
WG3 Computer simulations as a horizontal enabling technology: delivery, deposition and lung-tissue/particles interaction
WG4 Advanced imaging, patient monitoring and delivery verification
WG5 Toxicity, xenobiotics, risk assessment and policy development

Near Neighbour Country (NNC): Egypt
International Partner Country (IPC): Australia, Singapore, USA



MP1405

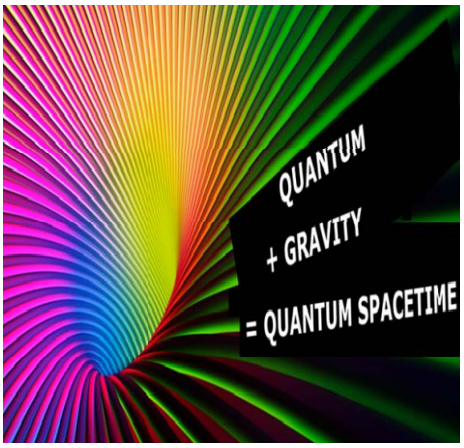
Quantum Structure of Spacetime (QSPACE)

Objectives

The main objective of the COST Action Proposal is to exploit the existing complementary expertise of different research groups in Europe to enhance the understanding of the relations between Noncommutative Geometry and leading theories of Quantum Gravity, and the applications of Noncommutative Geometry to Particle Physics and Cosmology.

Abstract

Noncommutative geometry (NCG) is at the heart of quantum physics, and its many facets and developments have widely influenced both physics and mathematics. In particular, NCG is related to a quantum theory of gravity and a possibly unified perspective on the fundamental forces of Nature.
This Action Proposal aims to create a Network with world experts from across Europe in the interconnected research subjects of NCG and gravity.
As data emerges from Cosmic Microwave Background and quantum interferometry experiments, a prime objective of the Action will be to seek measurable signatures of quantum spacetime. It will achieve a wider and deeper understanding of theory/experiment connections to produce world-leading advances in quantum geometry, and applications to String Theory, Quantum Field Theory, Particle Physics, and Cosmology. This will be achieved through collaborations and scientific activities, which will in particular ensure fair gender representation and foster participation of early stage researchers.
The proposed Action will impact on science and society at large through the revolutionary understanding of fundamentals of space and time that it achieves, and through the organisation of a digital respository for NCG related resources.



Keywords: Noncommutative/ Nonassociative Geometry, String Theory, Quantum Interferometry, Particle Physics Phenomenology and Cosmology, Quantum Gravity and Modified Gravity Models

Working Groups

WG1 Noncommutative Geometry Applications
WG2 Noncommutative Geometry Structures
WG3 Gravity Models
WG4 Cross-WG research activities, short-term scientific missions (STSMs)
WG5 University courses, gender and outreach activities

International Partner Country (IPC): Japan

MP1406

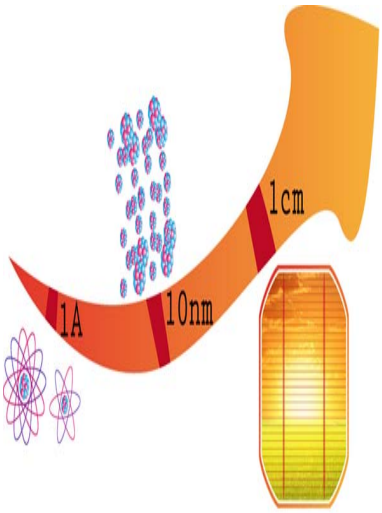
Multiscale in modelling and validation for solar photovoltaics (MultiscaleSolar)

Objectives

The aim of this COST Action Proposals is to defragment ongoing research in theoretical modelling and experimental characterisation of nanostructures in advanced solar cell architectures. This is achieved by coordinating exchanges across disciplines in the field of photovoltaics resulting in a consolidated multiscale modelling solution validated at all scales by experiment.

Abstract

Nanostructures show unique tunable material properties with major and proven potential for state-of-the-art optoelectronics. Exploiting them for the challenging implementation of next generation solar cell architectures requires novel multiscale modelling and characterization approaches which capture both the peculiar features at nanoscale and their impact on the optoelectronic performance at device levels.
To foster progress towards such approaches, MULTISCALESOLAR creates a new network of experts defragmenting knowledge by combining existing research activities to address key issues in in next generation photovoltaics raised by academic and industrial end users. It provides quantum mechanical descriptions of electronic, optical and vibrational properties in order to parametrize mesoscopic models for the dynamics of charge carriers, photons and phonons in nanostructures. This yields effective material parameters for use in macroscopic device level models validated at each step by experiment.
This proposed Action combines theoretical and experimental expertise in industry and academia benefitting the European Research Area. The Action actively addresses gender issues, and favours early stage researchers, developing their scientific and management skills. The Action yields, for the first time, validated multiscale understanding of nanostructure properties for optoelectronic applications, with a focus on third generation photovoltaics.

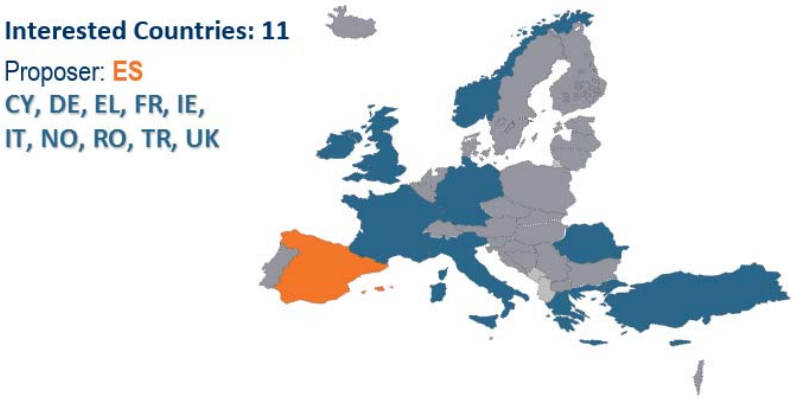


Keywords: Multiscale, Modelling, Characterisation, Photovoltaics

Working Groups

WG1 Nanostructure States
WG2 Mesoscopic Dynamics
WG3 Macroscopic Device Characteristics
WG4 Industrial Perspectives

International Partner Country (IPC): Australia



MP1407

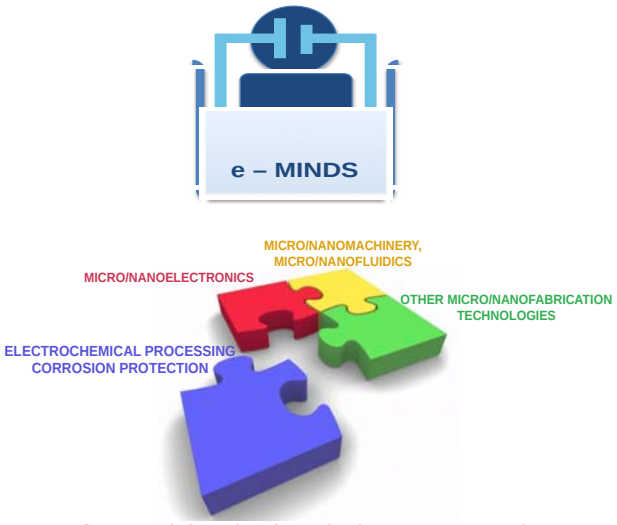
Electrochemical Processing Methodologies and Corrosion Protection for Device and Systems Miniaturization (e-MINDS)

Objectives

The main objective of the COST proposed Action is to support and promote high-quality research in electrochemical processing technologies and corrosion towards the development of miniaturized systems and devices.

Abstract

Cost-effective device miniaturization is one of the most significant challenges faced by process engineering and industry. As systems are further miniaturized, component machining and assembly become increasingly complex and manufacturing costs grow. High-throughput, economical advanced manufacturing and assembly technologies are urgently required at the industrial level. Electrochemical processing and corrosion science are key disciplines for the integration and the protection of small functional parts in complex micro- and nanosystems. A transfer of knowledge among the electrochemical community, micro- and nanosystems researchers and associated industry is timely and urgently required. This COST Action (e-MINDS) provides a unique networking platform that overcomes discipline fragmentation, strengthens European competiveness, and ensures scientific excellence.



Keywords: miniaturized devices, MEMS/NEMS, electrochemical processing technologies, corrosion protection

Working Groups

WG1 Electrochemical processing methods
WG2 Substrates, electrodes and templates
WG3 Protection against degradation of components by corrosion and corrosion-wear
WG4 Modelling, upscaling and integration

International Partner Country (IPC): Japan, Singapore, USA

TU1405

Quantifying the Value of Structural Health Monitoring (SHM) (GABI)

Objectives

The main objective of this Action Proposal is to build a new European network of researchers and engineers to address the challenges of thermoactive geostructures in terms of thermal and mechanical design. Based on multidisciplinary approaches dealing with thermal energy efficiency, geological engineering and geotechnical engineering, this group will develop collective understanding, share techniques, facilities and data, and work jointly in disseminating the obtained results across the EU. The proposed COST Action will foster the development of thermoactive geostructures and will be a big step towards future market development and widespread usage of this innovative technology.

Abstract

The increased need for renewable energy sources has led to expansion of shallow geothermal applications for heating and/or cooling of buildings. The integration of heat exchangers in those elements of the structure that interface with the ground, such as foundations, tunnels and diaphragm walls, is particularly attractive because of the inherent cost saving involved in combining a required structural component with the harvesting of geothermal energy. Thermoactive geostructures present the additional benefit of relying on localized resources (the ground) and therefore do not need additional infrastructural investments. By providing an alternative to fossil fuels and reducing peak demand from the grid, they also provide an attractive tool towards energy independence and distributed generation with no adverse impact on the environment. However, the widespread application of this sustainable technology is currently hindered by the large heterogeneity in the development and regulatory framework in European countries.

By sharing knowledge and experiences, the use of thermoactive geostructures will increase, especially in countries with less experience. This newly created network will ensure an inclusive and open platform for scientific discussion to define European best practice rules for geothermal applications, promote public awareness and confidence in this technique, and foster advancement in knowledge through collaboration.

Keywords: energy efficiency, renewable energy, shallow geothermal energy, thermoactive geostructures, thermo-hydro-mechanical soil/rock behaviour

Working Groups

WG1 Ground investigation methods
WG2 Energy performance assessment
WG3 Sustainability and urban planning
WG4 Thermoactive geostructure design
WG5 Communication and dissemination

TU1406

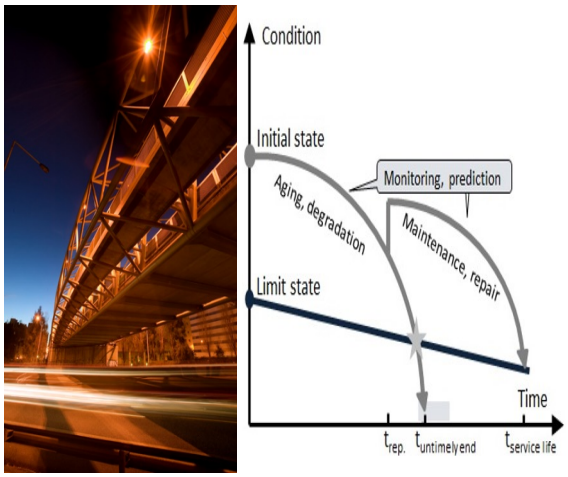
Quality Specifications for Roadway Bridges, Standardization at a European Level (BridgeSpec)

Objectives

The main objective of the Action proposed is to develop a guideline for the establishment of QC plans in roadway bridges, by integrating the most recent knowledge on performance assessment procedures with the adoption of specific goals. This guideline will focus on bridge maintenance and life-cycle performance at two levels: (i) performance indicators, (ii) performance goals. By developing new approaches to quantify and assess the bridge performance, as well as quality specifications to assure an expected performance level, bridge management strategies will be significantly improved, enhancing asset management of ageing structures in Europe.

Abstract

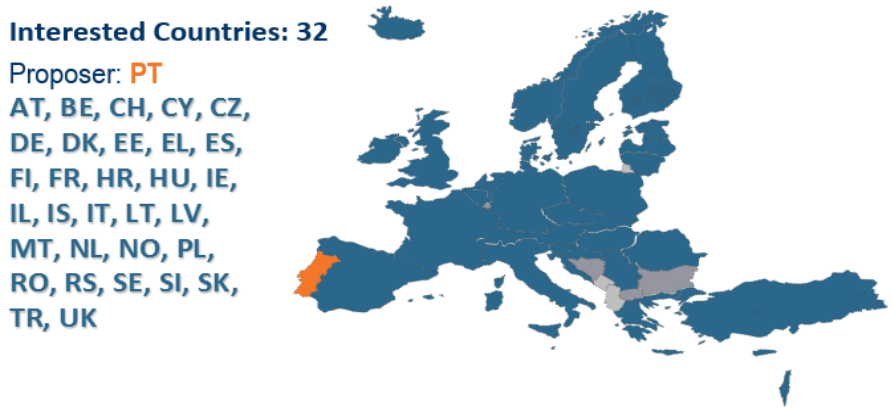
During the implementation of asset management strategies, maintenance actions are required in order to keep assets at a desired performance level. In case of roadway bridges, specific performance indicators are established for their components. These indicators can be qualitative or quantitative based, and they can be obtained during principal inspections, through a visual examination, a non-destructive test or a temporary or permanent monitoring system. Then, obtained indicators are compared with performance goals, in order to evaluate if the quality control plan is accomplished. It is verified that there is a large disparity in Europe regarding the way these indicators are quantified and how such goals are specified. Therefore, this Action aims to bring together, for the first time, both research and practicing community in order to accelerate the establishment of a European guideline in this subject. It will be also analysed new indicators related to sustainable and economic performance of roadway bridges.



Keywords: asset management, performance indicator, performance goal, quality control plan, roadway bridge

Working Groups

WG1 Performance indicators
WG2 Performance goals
WG3 Establishment of a QC plan
WG4 Implementation in a Case Study
WG5 Drafting of guideline / recommendations



TU1407

Scientific and technical innovations for safer Powered Two Wheelers (PTW)

Objectives

The main objective of the proposed COST Action is to develop a holistic and integrated approach towards PTW safety across Europe by bringing together PTW safety experts from academia and industry to a) acquire, unify and coordinate PTW safety research, and b) ensure broad dissemination towards PTW users, industry and public authorities. The COST Action aims to create a wide network of scientists and experts, to work jointly on new solutions and policy recommendations for PTW safety.

Abstract

Enhancing traffic safety is an on-going quest. Traffic accidents cause human suffering and huge economic losses. In the period 2000-2012, the riders killed per 10,000 Powered Two Wheelers (PTW) registered has more than halved, passing from 2.68 to 1.32. Nevertheless, PTW riders are still among the most vulnerable road users and other efforts are necessary toward a vision zero (accident) concept. On the other end, the use of PTW is currently increasing worldwide, especially in urban environments, since PTW offer many benefits for personal mobility: less congestion, time gain, energy savings, easier parking. These beneficial opportunities can only be capitalised if PTW safety is further prioritised. As prior initiatives to improve PTW safety have concentrated on single aspects, a truly holistic and integrated approach towards PTW safety is still lacking.
This COST Proposal addresses this gap, by bringing together PTW safety experts to i) acquire, unify and coordinate PTW safety research, and ii) ensure broad dissemination towards PTW users, industry and public authorities.

Keywords: Powered-Two-Wheeler, Rider, Safety, Risk awareness and Technology acceptance

Working Groups

WG1 Accidentology
WG2 Rider Behaviour
WG3 Traffic Environment
WG4 Technical solutions: primary and secondary safety
WG5 Integration across WGs: policy, legislation & dissemination

International Partner Country (IPC): Australia

TU1408

Air Transport and Regional Development (ATARD)

Objectives

The aim of this proposed COST Action is to promote a better understanding on how the air transport related problems of core regions and remote regions should be addressed in order to enhance both economic competitiveness and social cohesion in Europe.

Abstract

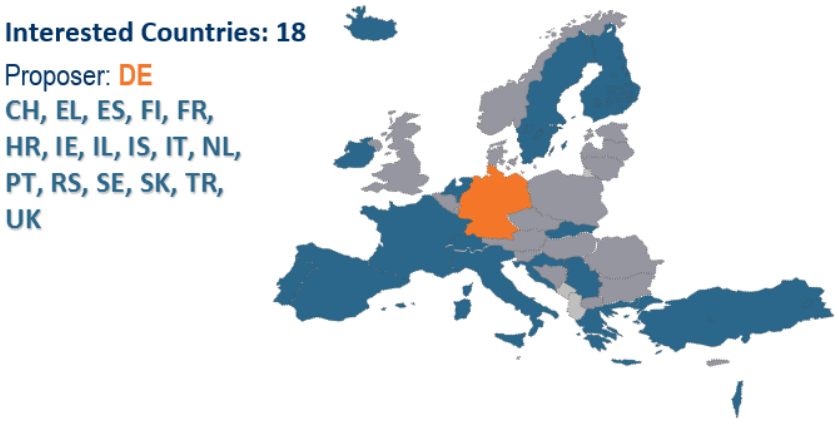
The air transport sector is a major contributor to the globalization of the economy. Its growth was accompanied and to a certain extent caused by liberalization. The growth in traffic levels has led to congestion, at both major airports and in airspace, and to a lack of service on thin routes, thus mainly affecting core regions and remote regions. This proposed Action investigates the relationship between air transport and regional development. The benefits that may be derived from it are both scientific and societal in nature. They include a better understanding of that relationship focusing on Europe; policy recommendations on how air transport infrastructure and service improvements should be made in order to support economic competitiveness and social cohesion; and the constitution of a network of researchers dedicated to air transport and its economic, social and environmental implications aligned with Europe 2020 strategy.

Keywords: Air transport, Regional development, Economic competitiveness, Social cohesion, European Union

Working Groups

WG1 Methods
WG2 Case Studies
WG3 Central Regions
WG4 Remote Regions
WG5 Handbook Preparation

International Partner Country (IPC): Australia, Canada, USA



TD1406

Innovation in Intelligent Management of Heritage Buildings (i²MHB)

Objectives

The objective of i2MHB COST Proposal is to create a pan-European open network, to promote synergies between Heritage Science's specialists, industrial stakeholders and research/education players, to achieve a unified common understanding and operation in the Heritage Buildings' domain, integrating multidisciplinary expertise, technology and know-how through a novel and independent global framework.

Abstract

Europe is one of the World's regions presenting the richest cultural heritage. Among this cultural heritage, Heritage Buildings (HBs) play a major role. In any initiative involving HBs a multidisciplinary approach is mandatory. HBs are undoubtedly an area where multidisciplinary is essential, being this multidisciplinary approach grounded on three major knowledge areas (pillars): scientific wisdom; systems and data; social engagement.

From the beginning, European Commission has strongly supported the preservation and conservation of HBs. Europe's Framework Programmes have supported more than 100 cultural heritage projects. Although many of them engage a multidisciplinary approach, mostly they present a limited scope and often each stakeholder (experts, professionals, curators, surveyors, architects, conservators, caretakers, end-users, stakeholders, general public, just to name a few) "speaks its own language".

This "Babel tower" of vast knowledge is a major drawback to achieve a fully integrated and systematic approach that promotes cross-sectorial synergies leading to a greater understanding of which methodologies and technologies are best positioned to impact on HBs.

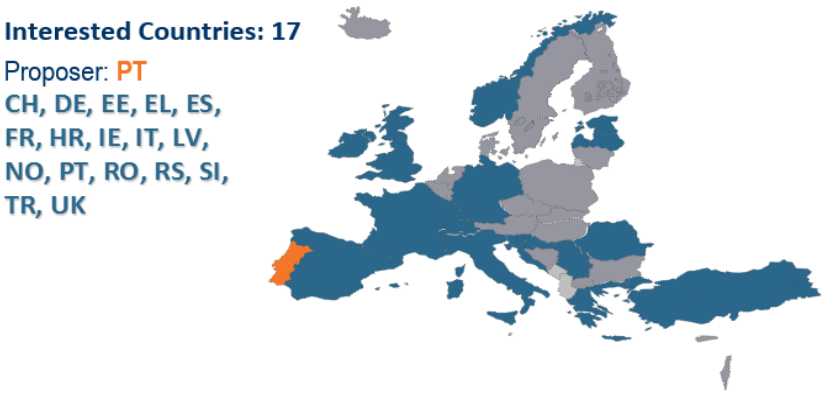
Nowadays, HBs' areas of knowledge and applications have been developed without a global seamless integration view. Collaboration targeting the HBs domain is actually focused on peer-to-peer partnerships, with a clear lack of global interoperability. This imposes several constrains on HBs, not only on scientific research but also on their daily operation.

Today, the main challenge is to overcome these confined collaborations, moving towards a global integrated scientific, technological and social multidisciplinary approach. The Action's outcomes will provide an inflection point in the HBs' field, enabling global common practices usage and triggering global scale innovation and seamless operation, considering culture, place, technology and field of knowledge.

Keywords: heritage buildings; preventive conservation; economic efficiency; energy optimization; sustainability

Working Groups

WG1 Common framework
WG2 Interoperability roadmap for Heritage Buildings' sustainability
WG3 Integration of Heritage Buildings into their surroundings
WG4 Social dimension of Heritage Buildings
WG5 Coordination and deployment



TD1407

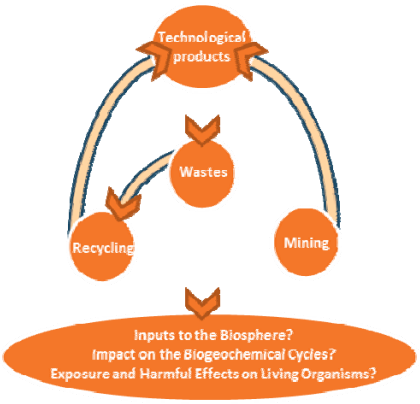
Network on Technology-Critical Elements – from Environmental Processes to Human Health Threats

Objectives

The proposed COST Action will create a network of scientists working and interested on TCEs, from an environmental perspective to potential human health threats, with the aim of defining the current state of knowledge and gaps, proposing priority research lines/activities, and acting as a platform for new collaborations and joint research projects.

Abstract

There are a number of trace elements that were considered just as laboratory curiosities but now, however, are key components for the development of new technologies. For most of these elements, the present understanding of their concentrations, transformation and transport in the different environmental compartments is scarce and/or contradictory. These elements, here defined as technology-critical elements (TCEs) – and include Nb, Ta, Ga, In, Ge, Tl, Te, the platinum group elements (PGE: Pt, Os, Ru, Rh, Pd and Ir), and most of the rare earth elements (REE: Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Yb, Lu) – are undergoing a significant change in their cycle at the Earth's surface due to their increase use in a variety of technological applications. Their impact on their biogeochemical cycles and potential biological and human health threats needs to be further explored.
The holistic approach of the proposed Action will cover research areas like: (i) Analytical challenges for quantitative and screening purposes; (ii) Environmental processes including biogeochemical cycles of the TCEs; (iii) Sustainable resource management: (iv) The exposure of humans to these elements and their compounds through air, water, and food.; (v) Potential ecological and human health threats (eco-toxicology).

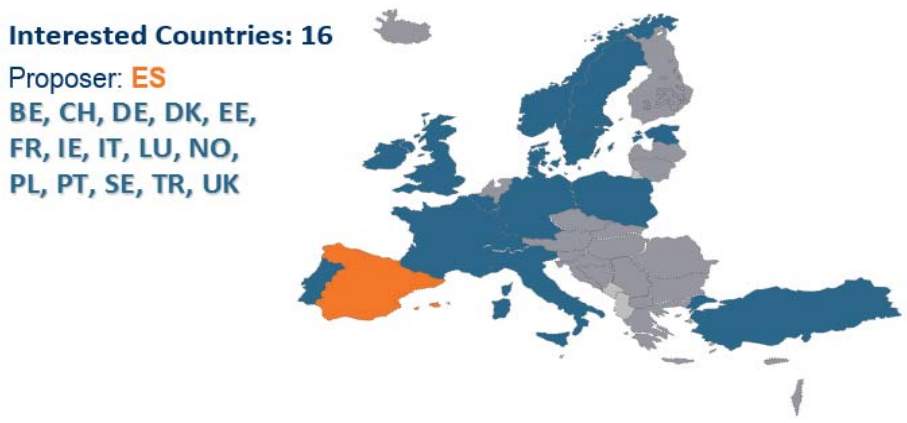


Keywords: Technology-critical elements, Analytical determination, Speciation, Environmental cycling, Sustainable resource management, Human exposure, Ecotoxicology, Toxicology

Working Groups

WG1 Analysis and Inter-calibration
WG2 Environmental Impact and Cycling
WG3 Human exposure and (eco)toxicology
WG4 Training and Capacity Building

International Partner Country (IPC): USA



TD1408

Interdisciplinarity in research programming and funding cycles (INTREPID)

Objectives

INTREPID's network will bring together communities of researchers, and research policy makers, contributing to advance our understanding and effective application of interdisciplinarity. A range of actions is designed to draw upon the Network's knowledge of barriers, as well as success and good practices, leading to the building of a critical mass of researchers and funders working to strengthen the European Research Area's capacity for interdisciplinarity.

Abstract

21st century challenges are characterized by high potential impact, complexity and uncertainty. Understanding and addressing these types of challenges is an essential pre-requisite for meeting sustainability objectives and policies, and it can only be achieved through greater interdisciplinarity. This in turn requires significant changes to research programming and funding cycles at the national, European and international levels.

INTREPID's overall aim is to better understand how to achieve more efficient and effective interdisciplinary research in Europe, in order to enhance our capacity to meet Europe's Grand Societal Challenges. It identifies three challenges, combining theoretical and practical dimensions: 1) reflecting and learning about interdisciplinarity; 2) building networks and collaboration among different research communities and the funding community; 3) enabling interdisciplinarity beyond structural, institutional and cultural barriers.

In order to encompass the entire life cycle of research programming and funding, from the strategic and abstract dimension of policy framing, to the practical dimension of project selection and implementation, INTREPID will draw on examples and experience related to urban development. This broad area is characterised by multiple, interrelated, and interdependent challenges, which require a collaborative effort between disciplines.

Keywords: research programming and funding, interdisciplinarity, transdisciplinarity, multidisciplinarity, social sciences, natural sciences, urban development, sustainability, transformation, grants, projects, research agenda-setting, research priorities, research policies, research programmes, research projects, evaluation, policy relevance, policy recommendations

Working Groups

WG1 Reflecting and learning
WG2 Building networks and cooperation
WG3 Enabling interdisciplinarity

International Partner Country (IPC): Australia, Brazil, Uruguay

TD1409

Mathematics for Industry Network (MI-NET)

Objectives

The objectives of this COST proposed Action are to encourage interaction between mathematicians and industrialists, in particular through (1) industry-driven problem solving workshops, and (2) academia-driven training and secondment.

Abstract

Mathematics underpins the whole of modern science and technology. However, the knowledge and understanding of mathematical concepts that is contained within universities is very poorly exploited. The UK's Knowledge Transfer Network in Industrial Mathematics and the Mathematics of Information Technology and Complex Systems (MITACS) in Canada are perhaps the best examples where mathematical expertise is harnessed and used successfully to improve a wide range of industrial process, and so provide a competitive advantage. Inspired by these examples we propose to create a Europe-wide partnership to promote collaboration in, and the benefits of, industrial mathematics.
The funding will be used for industrial internships, industry workshops, training weeks, and short-term scientific missions, with the general aim of increasing the interaction between industry and academia. Exploiting the mathematical knowledge and methodologies of academics will provide European industry with a competitive advantage. Universities will benefit as mathematicians are able to focus on practically relevant and cutting edge research problems. The training of early-stage researchers in particular will lead to a new generation with problem solving and communication skills and collaborative links that will be essential to maintain the goals of this proposal in the future long after this funding has finished.

Keywords: industrial mathematics, technology transfer, knowledge transfer, applied mathematics, mathematics applications, mathematical modelling, problem-solving, scientific computation, simulation, technology translation, interpretation, quantitative analysis, problem-refinement, mathematical specification/ description

Working Groups

WG1 Industrial Workshops
WG2 Education & Training
WG3 Case Studies
WG4 Membership & Publicity

International Partner Country (IPC): Brazil, New Zealand

Interested Near Neighbour Countries & International Partner Countries

COST is supported by
the EU Framework Programme
Horizon 2020

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