Horizon 2020 calls 2014-2015

Edinburgh Complex Fluids Partnership

PUBLIC VERSION

Topic Nb	Topic	Expected impact / scope (relevant to ECFP)	ECFP competencies
2014			
NMP 25 – 2014/2015	Accelerating the uptake of nanotechnologies, advanced materials or advanced manufacturing and processing technologies by SMEs	SME Instrument funding, 1 SME at least. Phase 1, 50K euros for feasibility study including risk assessment, market study, user involvement, Intellectual Property (IP) management, innovation strategy development, partner search, feasibility of concept and the like to establish a solid high-potential innovation project, Phase 2, 0.5M - 2.5M euros. focus on innovation activities such as demonstration, testing, prototyping, piloting, scaling-up, miniaturisation, design, market replication and the like aiming to bring an innovation idea (product, process, service etc) to industrial readiness and maturity for market introduction, but may also include some research.	ECFP has experience in helping companies develop new formulation structures
NMP 17 – 2014:	Post-lithium ion batteries for electric automotive applications	The scope may be reached e.g. by addressing new chemistries that allow high-energy densities, and by developing related specific new materials e.g. for cathodes and electrolytes. In order to accelerate the industrial take-up of the proposed solution, the development of prototypes should be included to show clear progress beyond existing post lithium-ion technology in terms of durability, cyclability and energy density, with consideration of scalability up to full scale for automotive applications	ECFP has a 1) new technique to create a tortuous three dimensional microstructure, 2) a new technique to measure movement and orientation of charged or magnetic particles (down to nanoscale)

FoF 13 – 2015:	Re-use and re-manufacturing technologies and equipment for sustainable product lifecycle management	Eco-innovative approaches for product design which are capable to take into account re-use and re-manufacturing aspects for enhanced product recovery and spare parts/services support. Advanced materials such as long and short fibre composites, nano-materials and bio-materials as well as more conventional materials that are today not considered for re-use due to absence of data on reprocessed performance.	ECFP has the capability to image microstructure under flow conditions, whilst measuring rheological properties, so can see how new components assemble and behave in a formulation.

SPIRE 8 – 2015:	Solids handling for intensified process technology	the use of highly intensified, miniaturized equipment is largely restricted to gas/liquid and liquid/liquid systems, while most processes applied in the chemical and pharmaceutical industry, as well as industries processing steel, glass, cement, non-ferrous metals, or minerals, involve solids as reactants, catalysts, intermediates or (by-)products. If these processes are to be transferred to intensified process equipment, it is likely that difficulties associated with the presence of particulate solids will be encountered, such as fouling or blockages. Robust and sustainable solutions to these problems are hardly available. Methods should be developed for the handling of solids in continuous production units. This can be achieved either by the miniaturization of currently available devices or – to a great extent – by completely new approaches to the processing of solids. Metering of solids - Advanced analytic systems - Transport of solids - Control of agglomeration - Reduction of fouling - Cleaning concepts, e.g. CIP - Solid separation and recycling - Regulatory requirements	Good academic understanding of colloid and granular behaviour at high concentrations and the role of surfactants. Have equipment for imaging microstructure under flow conditions to look at how blockages can occur and how aggregates behave under flow conditions. Expertise in understanding and controlling aggregation mechanisms in multicomponent systems

2015			
NMP 25 – 2014/2015	Accelerating the uptake of nanotechnologies, advanced materials or advanced manufacturing and processing technologies by SMEs	SME Instrument funding, 1 SME at least. Phase 1, 50K euros for feasibility study including risk assessment, market study, user involvement, Intellectual Property (IP) management, innovation strategy development, partner search, feasibility of concept and the like to establish a solid high-potential innovation project, Phase 2, 0.5M - 2.5M euros. focus on innovation activities such as demonstration, testing, prototyping, piloting, scaling-up, miniaturisation, design, market replication and the like aiming to bring an innovation idea (product, process, service etc) to industrial readiness and maturity for market introduction, but may also include some research.	experience in helping companies develop new formulation structures
NMP 2 – 2015	Integration of novel nanomaterials into existing production lines	1. Uptake of nanomaterials and products in one or more of the following sectors: fibre, yarn and textile; biomedical products, packaging products; energy; construction and building; and transportation. 2. Promoting safe-by-design approaches in collaboration with the EU nano-safety cluster and contributing towards the framework of EU nanosafety and regulatory strategies.	1) See and understand how nanoparticles affect microstructure and dynamics, 2) New technique for measuring the size of nanoparticles.
NMP 3 – 2015	Manufacturing and control of nanoporous materials	Nanoporous materials in one or more of the following application fields: transport; energy; construction and building; biomedical; catalysis; sensors; filtration, purification and chromatography	May be able to use our understanding of multicomponent behaviour, together with measurement techniques, to design and modify material microstructure

NMP 6 – 2015	Novel nanomatrices and nanocapsules	Safe, energy- and resource-efficient manufacturing systems for novel nanomatrices and nanocapsules containing active ingredients (e.g. drugs in nanomedicine, vitamins or anti-oxidants for cosmetic and personal care products, or cleaning and antimicrobial agents for housecleaning products), as well as their manufacturing processes.	Novel ways to make microcapsules, particularly with 50:50 ratio of 2 immiscible fluids inside microcapsule.
NMP 7 – 2015:	Additive manufacturing for table-top nanofactories	Novel additive manufacturing techniques that incorporate new functionalities and/or significant performance increase, e.g. inclusion of nanoparticles, carbon nanotubes, biomaterials or similar to enhance performance. Also metal sintering and processing of ceramic materials for 3D printing of non-plastics.	ECFP could help understand effect of nanoparticles on composite structure and rheology. Expertise in colloids in liquid crystals or polymers
NMP 11 – 2015:	Nanomedicine therapy for cancer	Potential major improvement in clinical cancer therapy, thereby providing enhanced quality of life for patients. Potential reduced direct and indirect healthcare costs linked to the disease and its treatment. Accelerated introduction of new nanotechnology enabled cancer therapy, through robust manufacturing and quality control procedures for new nanotechnology enabled drugs	ECFP can help with understanding the mechnisms of self-assembly for proteins.
NMP 12 – 2015	Biomaterials for treatment and prevention of Alzheimer's disease	Medical Devices and Advanced Therapies, which aim to create, optimise, enhance, substitute or support preventive and therapeutic interventions in Alzheimer's disease. They can include: biocompatible and biodegradable biomaterials as part of minimally invasive treatments, theragnostic materials, and biocompatible materials that are easily degraded/cleared after completing their roles. The development of new drug candidates for Alzheimer's and clinical trials are excluded.	Expertise on protein self-assembly.

NMP 16 – 2015:	Extended in-service life of advanced functional materials in energy technologies (capture, conversion, storage and/or transmission of energy)	Proposals should investigate the long-term in-service degradation of functional materials that have already demonstrated enhanced performance in terms of energy capture, conversion, storage and/or transmission, and the capability of a production at a scale that could warrant an industrial uptake. Proposals must include relevant modelling and testing under realistic conditions at pilot level. The development of improved materials solutions, as well as relevant roadmaps and a catalogue of good practices, should be included.	1) Expertise in creating bicontinuous self-healing materials for energy applications 2)Optimize the microstructure of fuel cells.
NMP 22 – 2015:	Fibre-based materials for non-clothing applications	Fibre-based materials for technical, high -value, high -performance products at reasonable prices, with improved safety and functionality.	ECFP can image fibre behaviour under flow conditions and in the presence of other components.
NMP 23 – 2015	Novel materials by design for substituting critical materials	Computational modelling complemented by experimental validation to screen substitute ingredients with others that are more sustainable and low-cost	Computer simulation and experiments of complex fluids
BIOTEC 5 – 2014/2015	SME-boosting biotechnology-based industrial processes driving competitiveness and sustainability	Market uptake and distribution of innovations tackling the specific challenge of boosting biotechnology-based industrial processes driving competitiveness and sustainability.	ECFP has expertise in understanding the behaviour of microorganisms in complex fluids.
BIOTEC 6 – 2015	Metagenomics as innovation driver	Metagenomic methodologies to enabling enhanced understanding of communities of living organisms and empower agricultural, industrial, medical and other applications. This should bring significant and measurable improvements in productivity, yields, quality and functionality, as well as reduction of costs for the end-users	Computer simulations of competing microbial communities.

SPIRE 7 – 2015:	Recovery technologies for metals and other minerals	new approaches combining several existing techniques (e.g. precipitation, adsorption, extraction, physical or biological treatment and separation) or new alternative solutions could provide a cost-effective way to achieve major improvements in the efficiency of recovery operations for metals and other minerals	
Inducement prize	Inducement prize for the development of new materials and materials-based creative solutions by upstream collaboration between material scientists and designers	Inducement prizes stimulate new and innovative solutions to address the existing and emerging societal challenges that are otherwise rarely pursued via normal grants and business processes in enterprises.	
	Exploitation Strategy and Innovation Consultants (ESIC)	External assistance to identify and address possible or actual obstacles to the future or imminent exploitation of the intended or already achieved results of projects (this includes Exploitation Strategy Seminars, support to standardisation, support to business plan development, and support to patenting).	
Fast track to Innovation	Fast track to Innovation	Under this Fast Track to Innovation (FTI) pilot, proposals for innovation actions linked to any technology field will be invited, on the basis of a continuously open call (with its first cut-off date in 2015) and a bottom-up-driven logic	
SFS-16-2015	Tackling malnutrition in the elderly	Design and development of evidence-based dietary strategies, dietary recommendations and new food products that support active and healthy ageing and help prevent malnutrition in the elderly, including in crisis and disaster situations.	Micro-encapsulation of nutrients for release in small intestine. Control of food texture for the elderly/creating creamy low fat foods etc.

FETFLAG 2 - 2015:	Graphene FET Flagship Core Project	development and exploration of material aspects of Graphene, health and environmental issues, fundamental science for Graphene, the production of Graphene or Graphene film, high-frequency electronics, optoelectronics, spintronics, sensing, flexible electronics, energy applications and nanocomposites. Other 2D materials may also be considered.	ECFP has a good understanding of component interactions to make composites and formulations and capable of imaging microstructure under flow
BG-7-2015	Response capacities to oil spills and marine pollutions	to design an appropriate response combining the right mix of interventions (e.g. mechanical collection, burning oil on surface, use of dispersants, bioremediation, natural dispersion or transformation of spilled oil	ECFP exploring bacteria behaviour in complex fluids such as emulsions, potential for bioremediation
ISIB-12-2014/2015	Public-Public Partnerships in the bioeconomy E. [2015] Sustainable livestock production ERA-NET Cofund	Sustainable livestock production, including animal health and welfare, but also in areas like breeding, nutrition and production systems	ECFP interested in 1) new formulations for hoof dressings with contribution from Veterinary School, 2) motility measurement in viscoelastic media important to understand fertility
H2020-TWINN-2015	Call for Twinning	Twinning aims at significantly strengthening a defined field of research in a particular knowledge institution (a research active university or a public research organisation or a private non-profit research organisation) by creating a link between this institution and at least two internationally-leading research institutions in other Member States.	ECFP interested in twinning with other institutions