



MARMARA
ÜNİVERSİTESİ

Marmara Üniversitesi, Horizon Europe çağruları CL1, CL4, CL5 ve CL6 için ortaklıklar arıyor.

Üniversitemiz Sizlerle Konsorsiyumlara ortak olabilir veya birlikte Konsorsiyum kurabilir.

Marmara Üniversitesinin akademisyenlerinin uzmanlığından yararlanmak isteyen proje temsilcileri aşağıdaki çağrılar için yürütücü veya ortak oldukları zaman alanında yetkin ortaklara ihtiyacı olduğunda veya proje fikri geliştirmek üzere toplantı düzenlemek isterseniz bizimle iletişime geçebilirsiniz.

Marmara Üniversitesi İnovasyon ve Teknoloji Transfer Uygulama ve Araştırma Merkezi (MITTO)

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1. HORIZON-CL6-2022-ZEROPOLLUTION-01-01: Preventing groundwater contamination and protecting its quality against harmful impacts of global and climate change (RIA) (3 projects for 2-4 million euro) 15 Şubat 2022

Activities are expected to achieve TRL 5

Expected Outcome: In line with the European Green Deal's zero pollution ambition, successful proposals will contribute to halt and prevent pollution of freshwater and soils, and consequently also protecting biodiversity, as addressed by several impacts under Destination 4.

Hem kirlilik kaynaklarının, yollarının ve etkilerinin daha iyi anlaşılmasını hem de birden fazla stres etkeninin yeraltı suyu kalitesi üzerindeki sinerjik etkileri araştırma konusudur.

Beklenen çıktılar

Yeraltı suyunu küresel ve iklim değişikliğinin neden olduğu kirliliğe karşı korumak için, ileriye dönük yaklaşımlar dahil olmak üzere gelişmiş önleme ve azaltma stratejileri geliştirilebilir.

Erken uyarı sistemlerini etkinleştiren ve karar verme ve yönetim için hazır sonuçlar sunan etkin risk değerlendirmesi ve risk yönetimi stratejileri geliştirilebilir

Gelişmiş sensörler, IT araçlarının ve gelişmiş modellemenin entegrasyonu dahil olmak üzere yenilikçi izleme stratejileri geliştirilebilir.

AB su sektörünün rekabet gücünü artırmak ve AB'nin küresel su sahnesindeki konumunu ve rolünü güçlendirmek için ileri bilgi, çığır açan çözümler ve yenilikçi teknolojilerin geniş çapta alınması.

2. HORIZON-CL4-2022-RESILIENCE-01-10: Innovative materials for advanced (nano)electronic components and systems (RIA) (4 projects for 3-5 million euro) 5 Nisan 2022

Activities are expected to start at TRL 3 and achieve TRL 5 by the end of the project

- Develop innovative new components and systems with enhanced and new functionalities and improved performance enabling added value to the European industry in sectors such as healthcare and wellbeing, mobility and transportation, aeronautics, environment monitoring, security and safety energy, smart cities, smart textiles and manufacturing;
- Actions under this topic must address one or more of the following technologies:
 - Innovative materials design and processing for devices based on new and emerging technologies, including advanced methods of data driven materials design, for e.g. spintronics, neuromorphic, in-materio computing multisensing, photonics, nano- mechanics advanced ferroelectrics or biosensing;
 - Heterogeneous integration of new materials (such as PZT, graphene, titanium oxide or aluminium oxide, etc.) for miniaturised sensor and actuator modules.

Projeler ulaşılabilecek temel nicel özellikleri belirtmeli ve artan verimlilik, güvenilirlik ve üretilebilirlik ile birlikte istenen işlevsellikleri sergilemek için gösterici bileşenler/sistemler geliştirmelidir.

Projede geliştirilen çözümlerin fayda sağlaması muhtemel uygulamalara bağlantılar kurarak, amaçlanan yaklaşımın endüstriyel uygunluğunu kanıtlaması beklenmektedir.

End-of-life issues should be addressed.

3. HORIZON-CL4-2022-RESILIENCE-01-11: Advanced lightweight materials for energy efficient structures (RIA) (3 projects for 4-6 million euro) 5 Nisan 2022

Activities are expected to start at TRL 3 and achieve TRL 5 by the end of the project

Kapsam: Yeni, sürdürülebilir ve yüksek performanslı hafif malzemeler ve endüstriyel kalite ve güvenilirlik taleplerine uygun yeni üretim teknikleri geliştirmek

- Development of new chemistries for fast curing resins (including bioresins) and associated novel production techniques (e.g. out-of-autoclave processes to reduce energy consumption);
- Utilisation of existing or development of cost competitive renewable resins and/or core materials in combination with new fibres to make all renewable lightweight composites and structures;
- Technologies and material design paradigms that enable hybrid composites based on a variety of constituents e.g. combinations of virgin and recycled fibres, bio-fibres including appropriate fibre coatings, etc. towards maximum cost and environmental benefits with a life-cycle perspective;

- High performance high temperature polymer composites with potential to extended use at temperatures above 300C. Besides general material and manufacturing, the long-term durability of materials in service is a potential area of research and development;
- New multifunctional composites where the materials and structures, besides traditional structural capacity, also is optimized towards one or several other functions such as thermal management (heating/cooling), energy harvesting and storage, morphing, self-monitoring, etc.;
- New recycling technologies for polymer composites structures and, in particular, composite constituents. The high value constituents e.g. carbon fibres or matrix are not easily separated and technologies to recycle both in the same process should be addressed.

Improving advanced lightweight materials will have a positive environmental impact, which is in direct relation to the well-being of citizens.

Kapsam:

- Düşük karbon ve temiz endüstri uygulamalarıyla ilgili kullanıcı durumlarına odaklanarak gelişmiş malzeme ve ürünlerin geliştirme aşamalarını geliştirmek için ilgili bir dizi karakterizasyon yöntemleri, modeller ve simülasyon araçları geliştirin;
- Verilerin izlenebilirliğine, bütünlüğüne ve birlikte çalışabilirliğine yardımcı olabilecek veri dokümantasyonu, değişim prosedürleri ve ontolojilere yönelik çabaları koordine etmek;
- Standartların, test kılavuzlarının veya kılavuz belgelerinin geliştirilmesi için standardizasyon kuruluşlarını daha dahil edin;
- Büyük ölçekli hesaplamalı tarama ile teoremin birleşimine odaklanın (ör. Yapay Zeka veya Makine Öğrenimi);
- Modelleme ve karakterizasyonla ilgili mevcut araştırma sonuçlarının yeniden kullanımını ve yeni proje sonuçlarının alınmasını kolaylaştırın.

4. **HORIZON-CL4-2022-RESILIENCE-01-19: Advanced materials modelling and characterisation (RIA) (3 projects for 4-6 million euro) 5 Nisan 2022**

Activities are expected to start at TRL 3 and achieve TRL 5 by the end of the project

- Develop an open repository for knowledge transfer, data sharing for integration between advanced materials characterisation (material properties/functionalities) and modelling (data and physics based, engineering modelling), allowing full interoperability between data and workflows (CHADA, MODA and EMMO), with direct connection to manufacturing process;
- Develop characterisation techniques supporting key European technology area strongholds and serving as validation tool for modelling tools;
- Enable a model-based innovation processes covering all stages from materials design (including several scales, e.g. from molecular to macroscale) to product development,
- Develop a relevant range of characterisation methods, models and simulation tools to enhance the design – with clear demonstration of modelling and characterisation

integration - and development stages of advanced materials and products, focusing on user cases related to low carbon and clean industry applications;

5. HORIZON-CL4-2022-RESILIENCE-01-20: Climate Neutral and Circular Innovative Materials Technologies Open Innovation Test Beds (IA) (3 projects for 10-12 million euro) 5 Nisan 2022

Activities are expected to start at TRL 5 and achieve TRL 7 by the end of the project

- Establish Open Innovation Test Beds (OITB) by upgrading existing or developing new materials facilities and pilot lines, and made available services for the design, development, testing, regulatory and environmental assessment and upscaling to industry and interested parties, specially SMEs;
 - Specific focus will be given to the sustainability of the ecosystem by designing new funding instruments that would complement the already existing ones and provide further support for industrial uptake of climate neutral and circular innovative materials technologies in key strategic value chains;
 - Demonstrate measurable reduction of costs for product design, time-to-market and regulatory compliance by means of faster and cheaper evaluation of production process deviations. Relevant indicators and metrics, with baseline values, should be clearly stated in the proposal.
- 6. HORIZON-CL4-2022-RESILIENCE-01-23: Safe- and sustainable-by-design organic and hybrid coatings (RIA) (4 projects for 4-5 million euro) 5 Nisan 2022**

Scope: The largest share of the organic coatings market belongs to a family containing Polyfluorinated Alkyl substances (PFAS), used in a wide variety of consumer and industrial products. Research will therefore target development of innovative PFAS-free materials with inherently surface active functions to be used for multi-industrial sector applications. (e.g. novel bio-based materials). The proposals should focus on integration of sustainable-by- design aspects including safety (toxicity), circularity and functionality of advanced coating materials and techniques (e.g. nanostructured self-healing or omniphobicity), throughout their lifecycle. Projects should include one or more of the following aspects:

- Materials design supported by in silico methods for predicting hazards (toxicity) and fate to reduce additive exposure/leaching to humans and the environment;
 - Development of alternatives maintaining functionality as well as reducing hazard and/or exposure (persistence) profiles with the aid of nanoinformatics modelling in order to reduce animal and experimental testing;
 - Development of assays and approaches to demonstrate the reduction of hazard and/or exposure profiles of the new (alternative) advanced materials in a streamlined and robust manner to support route to market.
- 7. HORIZON-CL4-2022-DIGITAL-EMERGING-01-03: Advanced multi-sensing systems (RIA) (10 projects for 3-5 million euro) 5 Nisan 2022**

Activities are expected to start at TRL 2 and achieve TRL 5

- Next generation multi-sensing photonic and electronic systems with increased integration of new functionalities, decreased size and cost-effective manufacturing.

- Supporting a European strategic autonomy in key integration and packaging technologies and related manufacturing value chains.
- Sensing devices and components allowing for reaching the new green deal objectives through enabling high levels of reuse/repair/repurpose, recovery and recycling of waste and materials or helping to reduce overall power consumption of a system by at least a factor of 2.
- Reinforcing European industrial leadership in high performance multi-sensing systems and components for sectors such as healthcare and well-being, environmental monitoring and protection, transport and automated driving, manufacturing, aerospace and security.

They should propose innovative approaches capable of acquiring, processing and interpreting vast amounts of sensory input data, where relevant, while reducing significantly overall energy consumption. The sensing functionality should build on technologies related to light and include integration with microelectronics or micro-nano- mechanical, micro-fluidic, magnetic, radio frequency or bio-chemical technologies where appropriate.

8. HORIZON-CL4-2022-DIGITAL-EMERGING- RIA 01-35: Advanced characterisation methodologies to assess and predict the health and environmental risks of nanomaterials (RIA) (5 projects for 2-3 million euro) 5 Nisan 2022

Activities are expected to start at TRL 3 and achieve TRL 5

There is an urgent need to establish appropriate methods for cost-efficient assessment and prediction of the health and environmental effects of nanomaterials, providing better decision criteria, based on quantitative rather than qualitative information and taking into account the full life cycle of a material. Project results are expected to contribute to several of the following expected outcomes:

- Develop high-resolution imaging methods for quantification and characterization of nanomaterials (e.g. nanoplastics) in complex matrices and determinations of their transformations in such environments.
- Increase availability of validated protocols to advance both nanosafety studies and material characterization.
- Ensure appropriate control experiments and more realistic in vitro models to address current gaps in nanotoxicology.
- Deliver reliable data and improved data reporting guidelines, supported by computational modelling, in order to allow the development of grouping and read across methods. Make use of open access database and using standards for data documentation (e.g. CHADA).
- Develop harmonized standardized test methods that can be used in a regulatory framework including test hazard assessment, biodegradability and sustainability for advanced nanomaterials.
- Increase the efficiency and effectiveness of materials and product development by reducing costs and time for product design, time-to-market and regulatory compliance

Scope

- Develop advanced characterization tools and methods for nanomaterials industry to enhance the design and development stages of advanced materials and products contributing to less waste and emissions while improving process quality in line with Life Cycle Assessment framework;
- Develop new in vitro models and tests to assess nanotoxicology;
- Include use cases to validate and demonstrate the approach(es) in industrial settings and involve comprehensive analysis and measurement of process and handling release scenarios and exposure measurements;
- Propose the validated methods to standardization bodies such as ISO or OECD for development of standards, test guidance or a guidance document;

9. HORIZON-HLTH-2022-DISEASE-06-04-two-stage: Development of new effective therapies for rare diseases (RIA) (8 projects for 8 million euro) 1 Şubat 2022 ve 6 Eylül 2022

Expected Outcome: This topic aims at supporting activities that are enabling or contributing to one or several expected impacts of destination 3 “*Tackling diseases and reducing disease burden*”.

- Researchers and developers make the best use of the state-of-the-art knowledge and resources for a fast and effective development of new therapies for rare diseases.
- Researchers and developers increase the development success rate of therapies for rare diseases by employing robust preclinical models, methods, technologies, validated biomarkers, reliable patient reported outcomes and/or innovative clinical trials designs.

10. HORIZON-CL4-2022-TWIN-TRANSITION-01-02: Products with complex functional surfaces (RIA) (4 projects for 4-6 million euro) (12 Ocak 2022)

- Develop more efficient manufacturing processes to increase market share increase for products with functional surfaces that contribute to competitiveness and a transition to green and sustainable production flows;
- Significant reduction of the environmental footprint for surface treatments;
- Uptake of treatment technologies in applications for a sustainable society, targeting reductions in energy use and environmental footprint.

11. HORIZON-CL4-2022-TWIN-TRANSITION-01-15: New electrochemical conversion routes for the production of chemicals and materials in process industries (RIA) (3 projects for 8-12 million euro) (12 Ocak 2022)

Proposals should address the following aspects:

- Development of the new electrochemical conversion route towards a product or intermediate of interest for process industries and demonstration at an appropriate scale;
- Optimisation of the reactor design and operation and the electrochemical parameters (mass and charge transfer) towards an improved electrochemical performance (increased Faradaic efficiency, lower overpotential, etc.);
- Optimisation of the reactor design and operation and the electrochemical parameters towards the increased lifetime or reduced cost of the electrochemical reactor components (electrode, electrolyte, catalyst, membrane);

- Development of suitable electrodes and electrocatalyst for the new conversion route towards a high selectivity and performance;
- Efficient integration of renewable energy sources, considering also their intermittency and the possibility to offer demand-response flexibility;
- Integrated process design, including materials, reactor/cell and separation methods, from the process intensification and cost perspectives;
- Demonstration and validation of the proposed concepts at an appropriate scale under environmental relevant conditions. Industrial feasibility should be proven by techno-economic assessments.

12. HORIZON-CL4-2022-DIGITAL-EMERGING-01-05: AI, Data and Robotics for Industry optimisation (including production and services) (IA) (4 projects for 3-5 million euro) 5 Nisan 2022

Scope: Proposals are expected to integrate and optimise AI, data and robotics solutions in order to demonstrate, by addressing use-cases scenarios in actual or highly realistic operating environments, how they optimise production and service use cases.

13. HORIZON-CL4-2022-DIGITAL-EMERGING-01-38: International cooperation in semiconductors (CSA) (1 project for 3 million euro) 5 Nisan 2022

- Preparation of a regional mapping of industrial strengths and gaps and their expected evolution
- Identification of emerging opportunities (e.g. technologies, approaches) for cooperation with other regions
- Definition of research areas in which international cooperation would result in tangible benefits for Europe
- Promotion and contribution to standardisation activities
- Organisation of joint events contributing to the above outcomes
- Promotion of mobility of researchers in specific topics (in cooperation with other support schemes)
- Preparation of a comparative analysis of modalities for cooperation and their applicability

14. HORIZON-CL4-2022-DIGITAL-EMERGING-01-07: Increased robotics capabilities demonstrated in key sectors (AI, Data and Robotics Partnership) (IA) (6 projects for 6 million euros) 5 Nisan 2022

Yeni robotik teknolojilerin, kilit sektörlerdeki tehlikeli işleri kendi başına üstlenebilmesi, gerekli tepkisellik, esneklik ve uyarlanabilirlik, doğal anlaşılabilirlik düzeyine ulaşabilen pilot ölçekli uygulamaların yapılması, süreçlerin veya hizmetlerin etkinliğinin iyileştirilmesi ve verimliliğinin artırılmasını sağlamak.

15. HORIZON-CL4-2022-DIGITAL-EMERGING-02-19: 2D materials-based devices and systems for biomedical applications (RIA) (1 project for 6 million euros) 16 Kasım 2022

Verilerin farklı paydaş grupları tarafından kullanılabilirliğini arttırarak Avrupa Sağlık Veri Alanına katkıda bulunmak ve ilaçlar ile dijital sağlık yeniliklerinin geliştirilmesi ve kullanımına ilişkin kanıt ve kararların kalitesini arttırmak.

Yeni ilaçların ve dijital sağlık yeniliklerinin yetkilendirilmesini desteklemek. Piyasadaki ilaçların ve dijital sağlık yeniliklerinin performansını izlemek.

16. HORIZON-CL4-2022-RESILIENCE-01-13: A digitised, resource-efficient and resilient industry -Smart and multifunctional biomaterials for health innovations (RIA) (3 projects for 5 million euros) 30 Mart 2022

Tıbbi ürün ve ya cihazlarda kullanım için belirli çok işlevli biyomalzemeler (Sağlık uygulamaları, doku mühendisliği, yapay organlar, implantlar, biyobaskı platformları için biyomürekkepler, mikroakışkanlar, biyoaktif yapı iskeleleri, giyilebilir ve implante edilebilir cihazlar, in-vitro teşhis vb.) veya mikro sistemler geliştirmek ve doğrulamak.