

Partnering Opportunity

Profile status : Published

Research Development Request

H2020-LC-GD call-area 8 Innovative nanotechnologies and modeling for PerFluorAlkyl Substances environmental remediation

Summary

A consortium of three Italian University departments is interested in H2020-LC-GD call to implement strategies to predict, control and reduce the PFAS (perfluoralkyl substances) contamination in soils, aquifers and receiving streams. They are looking for a coordinator, SMEs or research institutes, for research cooperation agreements in the field of remediation and water treatment technologies, contaminant detection and monitoring, economic and societal assessments and/or hydrology.

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Expiration Date	31 December 2020
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Public Link	https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/f90f4017-6c43-4423-9575-61254ab4608e

Details

Description

Two departments and an Interdepartmental centre of an Italian Polytechnic University are building a project under H2020-LC-GD call, area 8 (Zero-pollution, toxic-free environment), topic LC-GD-8-1-2020 (Innovative, systemic zero-pollution solutions to protect health, environment and natural resources from persistent and mobile chemicals), with deadline January 26, 2021.

The aim of the RIA project is to degrade the contamination by PFAS (per- and polyfluoroalkyl substances) and other persistent and emerging pollutants by applied nanomaterials and nanotechnologies. The idea is to apply catalytic/photocatalytic heterostructured nanomaterials (TiO₂-Titanium Dioxide, CeO₂-Cerium Oxide, modified zeolite, aluminium silicate clay like nanotubes, MOFs-metal organic frameworks, etc.) as well as (hybrid) core/shell nanoparticles for oxidation/reduction of contaminants, in particular by exploiting the solar light to promote reactions for degradation. Heterogeneous photocatalysis is a powerful and advanced technology for PFAS removal from water and soil matrices with relatively high efficacy. They can tailor some surface properties to promote the degradation adsorption.

Specifically thanks to the three involved units they can provide:

- a) innovative (photo)active nanomaterials for PFAS and other contaminants remediation: design, synthesis and physico-chemical characterization;
- b) investigation of reaction pathways of contaminants (e.g. PFAS) degradation at lab-scale;
- c) design/support of new detection methods based on nanomaterials or new spectroscopic techniques;
- d) tools to predict the fate of these chemicals in the environment;
- e) techniques and best practices to monitor these chemicals in soils and surface waters;
- f) lab and field scale novel remediation techniques and water purification technologies;

The involved departments come from three research groups of an important Italian Polytechnic (Applied Science and Technology, Environment, Land and Infrastructure Engineering) having expertise which spans from chemistry to environmental and chemical engineering, plus they can count on the facilities and collaborations of an Interdepartmental Clean Water Center. The three research groups are:

- experts in design/synthesis of nanomaterials for environmental remediation. The research also includes the application of several physico-chemical techniques to investigate the properties of the nanomaterials, from their structure to their surface properties as well as insights of spectroscopic tools for detection.
- experts in membrane-based processes and advanced oxidation processes for the purification and valorization of water and wastewater streams and the behavior of nanomaterials in aqueous environments.
- experts in the development of theories, technical solutions, softwares and tools needed to address the complex issues of aquifer characterization, exploitation, protection and quality remediation.
- Interdepartmental centre, which addresses technological challenges related to water safety and supply. Its goals are the design and advancement of innovative water treatment systems for use by industry and in the public sector to purify and to reclaim contaminated water streams efficiently and by using alternative energy sources.

The consortium is looking for a coordinator able to implement field activities of remediation, purification, and contaminant monitoring; industrial partners that use PFAS and persistent chemicals that are willing to investigate their protocols and improvement of practices around the use and management of these chemicals; regulatory agencies and/or regional/state/national bodies.

The actual consortium is not able to coordinate the project and thus looks for a partner that can act as coordinator.

Advantages and innovations

Contamination from persistent, mobile and emerging contaminants is a diffuse problem driven by a multitude of factors. The project would bring innovative solutions to different aspects of this problem:

- Provide the first framework to regulate, understand, and control the use and fate of PFAS and other persistent chemicals in the environment.
- Provide new techniques to monitor and remove these chemicals from the environment.
- Provide new materials to degrade them in different matrices, from water to soil
- Provide insights in spectroscopic tools to detect contaminants.
- Provide multiscale flow and transport modeling, health and environmental risk assessment, fate of pollution in the environment.

Stage of development

Proposal under development

Keywords

Technology

05005	Micro- and Nanotechnology
10002011	Soil and Groundwater Pollution
10002012	Remediation of Contaminated Sites
10004001	Industrial Water Treatment
10004004	Drinking Water

Market

08004003	Water treatment equipment and waste disposal systems
08004004	Other pollution and recycling related

Network Contact

Issuing Partner

ZACHODNIOPOMORSKI UNIWERSYTET TECHNOLOGICZNY W SZCZECINIE

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Open for EOI: **Yes**

Dissemination

Relevant sector groups

Environment
Materials

Client

Type and Size of Organisation Behind the Profile

University

Year Established

0

Already Engaged in Trans-National Cooperation

Yes

Languages Spoken

English
Italian

Client Country

Italy

Partner Sought

Type and Role of Partner Sought

The departments are looking for a potential coordinator: SMEs, industries, environmental agencies, government bodies.

The coordinator should be able to implement field activities of remediation, purification, and contaminant monitoring; industrial partners that use PFAS and persistent chemicals that are willing to investigate their protocols and improvement of practices around the use and management of these chemicals are welcome as well as regulatory agencies and/or regional/state/national bodies.

Type and Size of Partner Sought

R&D Institution, SME 51-250

Type of Partnership Considered

Research cooperation agreement

Program - Call

Framework Program

H2020

Call title and identifier

H2020-LC-GD call, area 8 (Zero-pollution, toxic-free environment), topic LC-GD-8-1-2020 (Innovative, systemic zero-pollution solutions to protect health, environment and natural resources from persistent and mobile chemicals)

Anticipated Project Budget

8-12 mln

Coordinator required

Yes

Acronym

Innovative, systemic zero-pollution solutions to protect health, environment and natural resources from persistent and mobile chemicals

Duration

150 days

Deadline for EOI

31 Dec 2020

Deadline of the Call

26 Jan 2021

Weblink to the call

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-gd-8-1-2020;freeTextSearchKeyword=;typeCodes=1;statusCodes=31094502;programCode=H2020;programDivisionCode=null;focusAreaCode=null;crossCuttingPriorityCode=>

Attachments
