

## Research & Development Request

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### **H2020-IND-CE-2016-17 Call – TOPIC PILOTS-03-2017: Pilot Lines for Manufacturing of Nanotextured surfaces with mechanically enhanced properties – a research institution is seeking for a coordinator and partners**

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#### Summary

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*A Bulgarian R&D institution and partners are preparing a project proposal on the H2020 TOPIC: PILOT Lines for Manufacturing of Nanotextured surfaces with mechanically enhanced properties. The team seeks a coordinator and partners (R&D institutions and companies) involved in the development and production of advanced materials and specialised technologies to obtain innovative modified coatings. Applications of the technologies are expected to be inter-sectoral.*

<b>Creation Date</b>	01 August 2016
<b>Last Update</b>	03 August 2016
<b>Expiration Date</b>	03 August 2017
<b>Reference</b>	RDBG20160801001

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#### Details

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##### Description

Nano-enhanced functional surfaces have huge potential in various industrial sectors but the involved technologies to manufacture these surfaces or coatings are currently at a lower TRL level. Thus, there is a need for up-scaling, demonstration and validation in large scale pilot installations in operational environments, before industrial manufacturing can take place.

The proposal will address the development, upscaling and demonstration in relevant industrial environments of reliable manufacturing processes to obtain nanostructured surfaces with mechanically enhanced properties. Existing pilot lines can be used as a starting point for development, incorporating new materials and methods and/or instrumentation with real time characterisation for measurement, analysis and monitoring at the nanoscale to characterise relevant materials process properties with aim to increase the level of robustness and repeatability of such industrial processes; to optimise and evaluate the increased performances of the production lines in terms of productivity and cost-effectiveness; to assess the functionality and performance of the new materials / products.

The proposal will address the complete research-development-innovation cycle and obstacles remaining for industrial application, involving a number of relevant materials producers and users, also considering the needs of SMEs.

Different technologies for nano-enabled surface production may be considered.

The Bulgarian R&D institution is seeking a coordinator and other partners with the intention to develop novel technologies for production of high performance materials strengthened on the surface by using diamond nano-particles. Different substrate materials will be tested and or tools and parts of machines production with suitable application in various fields: packaging, marine, water treatment, electronics, building and construction, automotive, transport, energy, textiles, industrial engineering, etc.

Expression of interest deadline: October 27, 2016.

Call deadline: October 27, 2016.

Call: H2020-IND-CE-2016-17

Topic H2020-PILOTS-03-2017: Pilot Lines for Manufacturing of Nanotextured surfaces with mechanically enhanced properties

Topic link:

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/23554-pilots-03-2017.html>

The project will be two stages with duration of 260 weeks.

### **Advantages and Innovations**

- establishment of interdisciplinary collaboration of knowledge and expertise and identification of high potential R&D and industrial partners for a technology for production of advanced modified coatings or surfaces;
- the implementation of the technology with wide application: for improving scratch and abrasion resistance, super hardness and mechanical resistance, wear resistance and corrosion inhibition of materials to increase the level of robustness and repeatability of the industrial processes;
- during the project coatings based on specific technological processes with addition of nano-sized strengthening phases will be applied on a number pre-identified substrates using new methods and modifications and then will be evaluated. The influence of mechanical treatment and basic heat treatment of the substrate material on the coatings properties will be tested.

### **Stage of Development**

Proposal under development

### **IPR Status**

Secret Know-how

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## **Keywords**

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### **Technology**

02002002 Coatings  
02002015 Surface treatment (painting, galvano, polishing, CVD, ..)  
02007010 Metals and Alloys  
02007015 Properties of Materials, Corrosion/Degradation

**Market**

08001007 Coatings and adhesives manufactures

**NACE**

M.72.1.9 Other research and experimental development on natural sciences and engineering

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**Network Contact**

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**Issuing Partner**

BERLIN PARTNER FUER WIRTSCHAFT UND TECHNOLOGIE GMBH

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**Open for EOI :** Yes

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**Client**

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**Type and Size of Organisation Behind the Profile**

R&D Institution

**Year Established**

1967

**Turnover**

1 - 10M

**Already Engaged in Trans-National Cooperation**

No.

**Languages Spoken**

English  
Bulgarian  
Russian

**Client Country**

Bulgaria

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## **Partner Sought**

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### **Type and Role of Partner Sought**

Type of partner: a lead partner (coordinator) and project members are sought that represent research and academic institutions and industry leaders.

Specific area of the partner: research institutions specialised in novel coating technologies for R&D of metals and alloys, coatings, familiar with research on nanostructures and especially the sp<sup>2</sup> and sp<sup>3</sup> hybridisation of carbon, high performance materials strengthened on the surface by various additives for joint testing of the coatings and especially the diamond nanoparticles in the layer and their effect on the properties of the surface; industrial partners for verification in industrial conditions and adaptation of the coatings to their products.

Task to be performed: research cooperation agreement.

### **Type and Size of Partner Sought**

SME 11-50, University, R&D Institution, >500 MNE, 251-500, SME 51-250, >500

### **Type of Partnership Considered**

Research cooperation agreement