

**Eol – Expression of Interest
PARTNER SEARCH**

**AREA OF INTEREST:
Answers expected before:**

GENERAL INFORMATION		
NAME OF ORGANISATION*: HEAT PIPES LABORATORY, HEAT AND POWER DEPARTMENT NTUU KPI		
TYPE OF ORGANISATION*: V Public body (Research organization/university/lab)		
CONTACT PERSON		
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TYPE OF PARTNER SEARCH*:		
V FP7 /HORIZON 2020 SPECIFIC CALL		
V NO SPECIFIC CALL/EXPRESSION OF INTEREST (ONLY IF RELEVANT)		
CONSORTIUM*	POSITION WITHIN CONSORTIUM*	
V Create a new consortium V Join an existing consortium	V As a Partner	
IF FP7 RELEVANT CALL: AREA OF INTEREST		
COOPERATION	CAPACITIES	
V 21 – Space V 5 – Energy	V Research infrastructures V Science in society V International cooperation	
PEOPLE	IDEAS	
V Initial Training networks Networks (ITN) V Intra European fellowship (IEF) V European Reintegration Grants (ERG) V Cofunding (COFUND) V Industry-Academia Partnerships & Pathways (IAPP) V International Outgoing Fellowships (IOF) V International Incoming Fellowships (IIF) V International Reintegration grant (ERG) V Marie Curie “Researchers’ night” V Marie Curie Awards	V Starting Independent research grant	
<input checked="" type="checkbox"/> EURATOM	<input checked="" type="checkbox"/> JRC	
CALL DETAILS		
CALL IDENTIFICATION (according to WP): N/A	DATE OF PUBLICATION: N/A	CLOSURE DATE: N/A
PROJECT INFORMATION		
ACRONYME & TITLE: New heat pipes designs with constant and variable conductions properties		

SUMMARY*:

Heat Pipes Laboratory of National Technical University of Ukraine KPI is seeking partners to co-develop or application a new heat pipes designs with constant and variable conduction properties for space and ground technologies. Laboratory is seeking a range of academic and industrial partners, including a consortium, to co-develop and pilot such equipment.

Description of the project

Contemporary aerospace and ground equipments are characterized by a continuous growth of power consumption and increase of their lifetime. New space satellites designs, from telecommunication satellite to microsatellite, include thermal stabilization systems which are based on heat pipes (HPs). The HPs are devices of very high thermal conductance and have successful experience of space craft and ground equipment applications.

However, the evolution of electronic devices opens new problems with ensuring their thermal modes. Such problems are caused by the need of the reliable passive thermal control system for a narrow range of equipments operation (for example, for navigation devices, optical devices and chemical batteries). Moreover new electronics devices characterized by high dissipated heat flux.

In this aspect, the constant conduction (CCHP) and the variable conduction heat pipe (VCHP) is a prime example of these problem solutions. So, recently, VCHPs emerge as solutions for thermal control problems on space crafts. The widest application of VCHPs and a major use of basic heat pipe units are in the removal of heat from electronic components and other heat-generating devices on satellites. The VCHP offers temperature control within narrow limits, in addition to the simple heat transport function performed by basic heat pipes. As well the VCHP has a unique feature that sets it apart from other types of heat pipe. This is its ability to maintain a device mounted at the evaporator at a near constant temperature, independent of the amount of power being generated by the device.

However, the growth of VCHPs application for space technologies requires the improvement of their reliability, the simplification of their design, the increase of their efficiency at decrease of weight and overall parameters. In this direction along with conventional VCHPs constant conduction heat pipes (CCHPs) could be used. In this case, CCHP technology provides the VCHPs by physical properties of heat carrier and special combination of capillary-porous structure characteristics. Ground tests and the first results of a space mission showed the perspective of such solutions.

Direction will focus on developing technologies for production VCHP and CCHP. Moreover, creation and piloting full scale energy efficient equipments based on VCHP and CCHP. As well, project will include an approaches and ways for implementation technical documents and standards. As a results, this technology will be implemented on European and world markets.

The works in direction new designs of VCHP and CCHP will run for 2-3 years. They need in participation of 3...5 organizations.

KEYWORDS: Constant Conduction Heat Pipes, Heat Pipes, Variable Conduction Heat Pipes, Space Technologies, Thermal Stabilization Systems, Energy Saving Technologies

TYPE OF PROJECT Funding scheme: FP7, H2020, Maria Curie and etc.

PARTNERS ALREADY INVOLVED (Contact Name, Name of organization, e-mail address): N/A

PARTNER SOUGHT

COUNTRY (IES) (if relevant): EU countries (Germany, Austria, Spain, Italy, France, UK, Netherlands, Suisse, Sweden, Slovakia, Czech Republic, Romania, etc)

EXPERTISE REQUESTED*:

Consortium or partners are sought based in a range of European countries with an interest to development and application of heat pipes to space technologies or ground energy saving technologies. They can be academic partners, business and industrial partners:

- A lead partner to take on overall project management especially on energy efficiency
- An aerospace manufacturer that has the experience of application of thermal stabilization systems based on heat pipes
- An industrial company which have capabilities for production energy efficient, heat and refrigerant equipments
- IT company that is an SME with R&D capacity and that has prior, demonstrable experience of successful software development
- Academic partners with expertise in R&D projects relating to building energy performance

ROLE: Technology development Research Demonstration

ORGANISATION TYPE:

Public body (Research organization/university/lab)

HOW MANY PARTNERS ARE REQUIRED? 3 ... 5