

QUESTIONNAIRE

(*) – mandatory fields

	Details about organisation
* Organisation name	Microwave Radiophysics Department of Yerevan State University
Organisation acronym	YSU
* Organisation Activity Type (RES - Research, HE - University, SME - Small and Medium Enterprise, IND - Industry, OTH - Other)	RES, HE
* Keywords of main research areas	Low Intensity Electromagnetic Fields, Millimeter Waves, DNA, Tumor, Health, Medicine
* Head of organisation (first name, family name)	ARAM SIMONYAN (Rector YSU) RADIK MARTIROSYAN-Head of Microwave Radiophysics dept. YSU (and President of Armenian National Academy of Sciences)
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* Description of organisation and its research achievements for the last five years (~ 5000 signs)
<p>The department of Microwaves (Extremely High Frequencies) Radiophysics and Telecommunication of YEREVAN STATE UNIVERSITY was founded in 1960. The main trends of scientific research of the department are as follows:</p> <ul style="list-style-type: none"> • Combine Influence of Antitumor Drugs and Electromagnetic Millimeter Waves (MMWs) on Structure of Tumor DNA. • Binding of Antitumour Compounds with the DNA-irradiated Millimeter Electromagnetic Waves. • Biological and Medical applications of Terahertz radiation. • Monitoring of environmental space by superconducting infrared spectrometer • Influence of Millimeter Range Low Intensity Coherent Electromagnetic Radiation (EMR) on Erythropoiesis in Case of Bone Marrow Deficiency. • Blood Catalase Activity Change under Influence of Microwave Frequency EMR. • Effect of Coherent Microwaves on DNA Stability in Solution. • Effect of Low-Energy Microwaves on the Activity Neurons in the Supraoptic Nucleus of the Hypothalamus. • Mechanisms of MMWs Direct and Indirect (mediated) Action on Membranes Systems and Biological Objects. • Bacterial Effects of MMWs. • Oscillations of Molecular Structures of the Water Environment under Low-Intensity Millimetre Range EMR. • Influence of MMWs on the Growth of Plants. <p>Our previous studies have demonstrated low intensity electromagnetic millimeter waves</p>

effects on the spike activity of neurons in the supraoptic nucleus of the hypothalamus in rats, on blood catalase activity change, on E. coli growth rate, on binding of antitumour compounds with the DNA. It has been shown in our experiments that MMWs have bactericidal effect; they cause a decrease in bacterial growth rate, maximal inhibitory effect depends on resonance frequency. Therefore this effect can be used for microwave sterilization of food. Recently water's resonance frequencies, on which the depth of MMWs penetration in tissue and organism could increase by one order, were found. Our conducted studies on DNA solution confirmed high efficiency of given frequencies. Thus, taking the above-mentioned into account, we could participate in those all topics (calls), which concern the research and application of millimeter electromagnetic wave radiation applied investigations in Medicine and Biology (particularly, in HEALTH-2009-3.1-3: Complementary and Alternative Medicine). In this theme we would be able to carry out any electromagnetic exposure experiments of the objects to be investigated.

High -educated specialists are trained at the department, who have deep knowledge in the fields of modern experimental radiophysics, physics, mathematics necessary for analyzing the mechanisms of interaction of electromagnetic waves and biological objects. Department possesses necessary modern equipment for the successful fulfilment of the project: centimetre and millimetre waves generators, femtosecond Terahertz laser, microwave/millimetre waves ranges radiometers, frequency and power measure various equipments.

Head of the department Academician R.M.Martirosyan, President of the National Academy Sciences of Armenia.

	Contact Information
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International co-operation / Participation in EU RTD programmes or other bilateral / multilateral actions INTAS, TACIS, TEMPUS, COST, EUREKA, other RTD programmes (please specify programme/s, project title/s and year/s)
NO

	* Please, use "X" to indicate the scientific area/s of your potential project
CHEMISTRY	
SOCIAL AND HUMAN SCIENCES	
ECONOMIC SCIENCES	
ENGINEERING SCIENCE	
ENVIRONMENT	
AGRICULTURE AND FOOD	
HEALTH	X
MATHEMATICS	

INFORMATION SCIENCE	
PHYSICS	X
NANOTECHNOLOGIES	
ENERGY	
TRANSPORT	
SPACE	

* Summary of potential research project envisaged hosting of European researcher for the period of between 1 and 2 years
At present an investigation of influence of Low Intensity Millimeter Electromagnetic Waves on biosystems of various complexity (microbes,DNA,biological solutions,tumors,brain activity,etc.) have been carryng out to find out the influence mechanisms and aiming at the application of the investigation in medical practice for diagnoses and therapy.

	Please, confirm your agreement on data publication and dissemination
I agree with the publication of the data on the web-site http://www.inco-eeca.net , and dissemination among Mobility National Contact Points of the EU MS and AC (YES / NO)	YES
Date 01 December 2008	