1. Project Proposal Information

Project Proposal Title	The influence of processes on the outer surface of thin metal layers on diffusional phase formation in a volume
Project Proposal Acronym	
Call Identifier	FP7-NMP-2012-CSA-6 FP7-NMP-2012-SME-6 FP7-NMP-2012-LARGE-6 FP7-NMP-2012-SMALL-6
Topic(s)	NMP.2012.2.2-2 Materials for data storage
Funding Scheme	
Keywords	thin metal layers, nanostructure, diffusion, surface
Abstract (Max. 2000 words)	Fundamental studies of the impact processes that take place onto external surface of thin subsurface layers and layered composites of pure metals and alloys with submicron and nanoscale thicknesses (including biocompatible metallic materials and metallic materials for medicine) and govern the development of diffusion controlled formation of phase composition and phase transformations inside inner parts of materials aiming to lay a scientific foundation for basics in advanced technologies for production of nanostructured, nanophase materials and epitaxial layers.
Project Description (Main Work Packages)	This project proposes comprehensive studies of physical and chemical processes on the outer surface of a number of composites (including biocompatible metals and metal medical supplies), the thickness of which can be compared with a length of diffusion path at temperatures of exploitation. Defining the mechanisms and kinetics of diffusion mass transfer at relatively low temperatures to surface layers and processes of phase formation in the volume of compositions that are prospective for practical use, should be considered as relevant scientific challenges. Experimental confirmation of hypotheses and patterns that will be determined, open up new technological possibilities of controlled and pre-designed formation

	of structure-concentration-phase distribution of substances, allows a new - higher - degree of controllability and repeatability of production processes, layered compositions of metals and metal alloys submicron and nanometer thickness, will allow to achieve a qualitatively new features and performance, will increase yields valid. It will be proposed technical solutions in the industry of medical engineering (creating biocompatible coatings on titanium alloys for dentistry, surgery, implantology, prosthetics, etc.) and developed methods for modification of metal surfaces with a view to improving biocompatible implants.
Current Consortium (Partners, Organisation Types)	No
Deadline for Responses	November 2011, January 2012

2. Profile of the Partners Sought

Organisation Type	Research or Educational
Required Skills and Expertise	Conducting experimental research and computer modeling of the diffusional processes that are to be investigated in this project
Role in the project	Cooperation in investigations
Other Requirements	

3. Project Proposer Information

Name of the Organisation	National Technical University of Ukraine “Kiev Polytechnic Institute”
Organisation Type	Education
Country	Ukraine
Fields of Activity	thin metal layers, diffusion, nanophase materials

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Previous FP Projects Participated	No