

## 1. Project Proposal Information

<b>Project Proposal Title</b>	Formation of carbon-hardening and nitrogen containing subsurface of iron alloys by electro-spark and laser alloying methods
<b>Project Proposal Acronym</b>	
<b>Call Identifier</b>	FP7-NMP-2012-CSA-6 FP7-NMP-2012-SME-6 FP7-NMP-2012-LARGE-6 FP7-NMP-2012-SMALL-6
<b>Topic(s)</b>	NMP.2012.1.4-3 Nanoscale mechanical metrology for industrial processes and products
<b>Funding Scheme</b>	SME-targeted collaborative projects
<b>Keywords</b>	Subsurface, iron alloys, coatings, electro-spark alloying, laser treatment, phase structure
<b>Abstract (Max. 2000 words)</b>	The project envisaged to establish the physical basis of forming coatings containing carbides and nitride phases processes formed by the interaction of elements saturation environment (nitrogen and carbon) of metals incorporated in alloys of iron and transition metal alloying by electrode (zirconium, titanium, chromium ). Creating carbide-nitride coating on the surface of iron alloys occur under intense processes of high-energy treatment – electro-spark alloying (ESA) and laser alloying (LA).
<b>Project Description (Main Work Packages)</b>	It is expected that obtained by electro-spark and laser alloying treatment coatings will have superfine carbide, nitride and carbide-nitride phases. This is provide new physical and mechanical properties, in particular, higher hardness and wear resistance compared to the hardness and wear resistance obtained with traditional chemical-heat treatment. To establish patterns of these type coatings will focus on structural and phase transformations occurring during ESA and LA, the influence of saturation environment on the structure and properties of the alloy subsurface and defined its optimal composition.
<b>Current Consortium (Partners, Organisation Types)</b>	No

<b>Deadline for Responses</b>	November 2011
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## 2. Profile of the Partners Sought

<b>Organisation Type</b>	Research or Educational
<b>Required Skills and Expertise</b>	High-energy treatment methods, novel materials, nanomaterial's
<b>Role in the project</b>	Cooperation in investigations
<b>Other Requirements</b>	

## 3. Project Proposer Information

<b>Name of the Organisation</b>	National Technical University of Ukraine "Kiev Polytechnic Institute"
<b>Organisation Type</b>	Education
<b>Country</b>	Ukraine
<b>Fields of Activity</b>	Coatings, high-energy treatment methods, X-ray analysis
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<b>Previous FP Projects Participated</b>	No