

Nanotecnologie

RICERCA PARTNER NMP7-EU-MSFRP-3

01 dicembre 2017

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Attraverso il link a fine testo troverà informazioni (incluso il CONTATTO DEL PROPONENTE) relative ad una ricerca partner proveniente dalla Lettonia, Tema NMP, CALL IDENTIFIER: FP7-NMP-2008-SMALL-2, TOPIC: NMP-2008-2.5-2 Modelling of interfaces for high performance materials design.

----- PARTNER SEARCH NMP7-EU-MSFRP-3 -----

<Reference n.: NMP7-EU-MSFRP-3>

<Deadline: 06/03/2008>

<Programme: Nanotecnologie, materiale e produzione>

<Project Title: FERREL, Nanosized ferroelectric crystal and films as new sensor and active elements.>

<Financial Scheme: Small or Medium-Scale Focused Research Projects>

<Description: Modelling and computational construction of multifunctional nanostructured components for nanoelectronic devices (sensors, filters, motors etc.), based on ferroelectric PVDF copolymers with locally polarized patterns (using AFM/PFM tip). These patterns are having different surface organization and orientation (various curves, shapes, lines, etc) suitable for various purposes: molecules and living cells trapping, rotation, separation, recognition, inhibition, etc. For special cases it may be covered by metal deposition (ferroelectric nanolithography). The main problem is - modelling and calculation of the interfaces properties and behaviour as between these differently oriented nanostructured PVDF polarized patterns (boundaries between differently polarized domains) as between PVDF polarized patterns and others interacting components

(electrodes, substrates and moving components: molecules, gas hydrates, living cells). The understanding the behaviour of the interfaces at these boundaries under different environment parameters (electric field, temperature, pressure) is the key for the design (and accurate modelling) of the high performance materials, sensors and active elements based on the ferroelectric PVDF copolymers with locally polarized patterns. As results - the simulations and modelling of most suitable systems and configurations will be explored that could us to predict the constructed nano-materials novel properties and behaviour in the desirable scales, and the computational prototypes of the most realistic devices for multi-application will be created. The advanced computational modelling approaches and molecular dynamics simulation are used in this proposal (tools are based on Gaussian98, HyperChem 7.52 and own software). The computer calculations will supported by experimental exploration and fabrication of prototypes, which will be tested for the selected objects (such as, molecules, living cells, etc.).The validation of the models against experimental results will be reached.

KEYWORDS: Ferroelectrics, Thin films, Surfaces and Interface, Polarized patterns, AFM/PFM and ferroelectric lithography, Nanoelectronic components & engineering

<Organisation Type: Università>

<Partner Sought: Industrial partner or SME (<250 employees) from EU Countries.

TASK TO BE PERFORMED: Implementation of the modelling results, concerning prototype design and testing functionality of prototype nanoelectronic devices.

DOMAIN: Electronics, nanoelectronics

For further information about this Partner Search, including Contact Person's details, please consult this web address:

<http://www.apre.it/formaAssist/scheda.asp?id=975>