Instructions for Letters of Intent to be submitted to the First Transnational Call for Collaborative Proposals of the NanoSci-ERA Consortium

Please read the Announcement carefully concerning

- The scope of the call
- The eligibility criteria for the applicants
- The structure of the collaboration

1. Format of submission

All material must be in English and submitted by upload to the website of NanoSci-ERA (http://www.nanoscience-europe.org), no later than 5:00 p.m. (CET) on Friday May 19, 2006.
The upload should consist of the following three documents:
(1) the Short Application Form filled out and submitted as an Excel file, bearing a title of the form NameOfProjLeader-Acronym-Transnat-ShortForm.xls *
(2) the same Short Application Form filled out and submitted as a PDF file, bearing a title of the form NameOfProjLeader-Acronym-Transnat-ShortForm.pdf * and
(3) a PDF file containing the text part of the application as detailed below and bearing a title of the form NameOfProjLeader-Acronym-Transnat-Text.pdf *

* in the title of the submitted files replace “NameOfProjLeader” by the family name of the Project Leader (no first name) and replace “Acronym” by the first 8 letters of the project acronym (if the acronym is longer than 8 letters you must truncate it). A typical title would look like this: Smith-NANOQUAC-Transnat-ShortForm.xls

2. Filling out the Short Application Form

The Short Application Form may be filled out by writing directly in the answer-boxes of each rubric. Please do not change the fonts in the answer-boxes.
Please note that for any information that is declared in the Short Application Form or in the text section of the Letter of Intent (e.g. date of thesis) supporting evidence (e.g. a document from the university or a photocopy of the thesis front page where the defense date appears, etc.) must be supplied upon submission of the Full Proposal.
Most rubrics in the Short Application Form are self-explanatory, or are accompanied by footnotes. The rubrics that require some clarification are discussed below.

Keywords:

> **Up to six** keywords describing the thematic content of your proposal may be introduced here. **The first four** keywords must be chosen from the proposed list by clicking on each answer-box. The explanations of the keyword abbreviations that appear in this list are given in Annex I.

Up to **two more** keywords (within the total of six) may be chosen **freely** so as to provide a brief description of the thematic content of the proposal.

Summary

The summary (maximum of **1000 characters**) should contain a concise description of the scientific goals and program of the project and should explain how the proposal is within the scope of the Call, focusing on individual nano-objects. As this summary is intended for the interdisciplinary review panel, abbreviations and jargon comprehensible only by narrow specialists should be avoided.

Project Leader:

The applicants appoint a Project Leader who submits the proposal on behalf of all co-applicants. The Project Leader is the only contact person for this submission. Please read carefully the statement that you effectively sign by submitting this proposal. Any violation of the conditions outlined in that statement will cause the proposal to be disqualified.

When the Short Application form is completed, a PDF version should be made and BOTH the XLS and PDF versions should be submitted.

3. Preparing the text section of the Letter of Intent

The text section should be prepared in 11-point Times New Roman font. The text may be up to 16 cm in width and may be single-spaced.
It should consist of the following 3 sections:

A. Proposed research (3 A4 page-sides maximum, including diagrams, figures, equations, etc.)

This section should give a description of the scientific ideas of the collaborative project, highlighting particularly the originality and novelty of the proposal, the objectives of the project and how the applicants propose to achieve them.

B. Collaboration (1 A4 page-side)

This section should:

- Explain the value added by the collaboration by highlighting things that could not be done without the collaboration and new capabilities that will be created. Please list any existing funded collaborations among co-applicants (Title, names of participants, funding agencies). If none, state explicitly “no previous funded collaborations”.
- Describe the role of the young researcher(s).
- Clarify major collaboration vectors and the complementarities of the applicants.

C. Partners

A one A4 page-side CV for each co-applicant, including:

- personal details (gender, name, address etc)
- work experience
- other relevant information

additionally:

- a statement that no part of the proposed research is already funded
- for Young researcher(s):
  - date of PhD thesis defense and evidence for independence and initiative.
  - details of any official career breaks (dates, type of break, home organization granting the authorization at the time…).
  - an additional A4 page-side (if necessary more) with the list of all publications (title, authors, journal references) over the last 5 years.
- for Senior researcher(s):
  - details of qualifying national contract in nanoscience (title, partners, funding agency, amount of money), particularly describing how the research in the proposal goes beyond the work of the qualifying contract and/or of other already funded research.
  - an additional A4 page-side with the list of the most relevant publications (title, authors, journal references) over the last 5 years, and highlighting the 5 most important.

4. Finances

Although no financial details are required in the Letter of Intent, you must have a clear picture of the budget you will request. Please refer to the "Funding" section of the Announcement and, if necessary, check the conditions for special items such as VAT, overheads, subcontracting, or 4-year PhD positions with your national funding agency (contact details in Announcement) for clarifications.

Only a PDF version of the text section of the Letter of Intent, not exceeding **1 MB**, should be submitted. Oversize files cannot be accepted and will cause the proposal to be disqualified.

5. Important dates

19 May 2006:	Deadline for the submission of Letters of Intent
7 July 2006:	Invitation of successful applicants to submit Full Proposals
8 September 2006:	Deadline for the submission of Full Proposals

ANNEX I

Keywords
for the Transnational Call for Collaborative Proposals
in Nanoscience

1. NANO-OBJECTS and NANO-MATERIALS: Fabrication/Growth, Characterization and Material studies

Nano-OBJECTS (BOTTOM-UP fab/growth):

1.A Organic (and C-based), Bio and Hybrid Macromolecules and Supra-molecular assemblies

HOLM	Hollow molecules (fullerenes, cyclodextrines, …)
CNT	Carbon nanotubes and peapods (C60 chain in CNT)
POLYM	Polymer nano-particles
DEND	Dendrimers (= highly-branched ~spherical mono-disperse polymer macromolecules)
ONW	Organic nano-wires and nano-fibers (e.g. made using electro-spinning)
NCAPS	Nanocapsules (such as liposomes)
BMEMB	Bio-membranes
BIOPOL	Biopolymers (= self-assembled wire of biomolecules forming a complex pattern)
BIOSA	Other biomolecular self-assemblies
NHYB	Nano-hybrid particles
BMPart	Biomimetic particles (polymer/organic architectures used for nano-scale org. of inorganic components based on emulated bio-like mechanisms)
FQD	“Free” Quantum dots (free mono-disperse core/shell(/shell) structures in solution)

1.B Inorganic Nano-objects

MetNP	Metal or metallic-alloy
OxCNP	Oxide or ceramics
INP	Other inorganic compounds (e.g. minerals such as clay, zeolite or kaolinite) nano-particles nano-aggregates, -cluster and -colloids. Nano-powders
QISL	Quantum “islands” (semiconductor quantum dots in semiconductor matrix)
INT	Inorganic nanotubes (such as boron nitride nanotubes)
INW	Inorganic nano-wires, Nano-whiskers and Nano-fibers

1.C Biomimetic cells and cellular organelles

BMCell Biomimetic cells and cellular organelles (= synthetic cells or cellular components)

1.D Miscellaneous nano-objects

Use free keyword

Nano-OBJECTS (TOP-DOWN fab):

1.E Patterned nano-objects

Use free keyword for Nano-wires & nano-mesas, Nanopores, Atomic contacts… *(non-exhaustive list)*

Nano-structured MATERIALS:

1.F Molecular materials

MolMat Materials made of an organized assembly of molecules designed to meet a specific need. At the crossroads between organic chemistry and material science)

1.G Nano-composites

NCOMP Hybrid nano-materials = 2D, 3D or amorphous systems made of distinctly dissimilar components mixed at the nanometer scale, often organic/inorganic), including nano-structured fluids (such as "gels") and organo-mineral hybrids produced by sol-gel techniques. See also A.

1.H Metamaterials

MetMat Metamaterials (highly-ordered assembly of different nanocrystals or patterned deposits)

QCryst Quasicrystals

1.I Biomimetic materials

BMMat Biomimetic materials (= use of bio-like mechanisms to generate nano-structured bulk materials), including bio-mineralization

TEMPL Materials structured *via* molecular templates/moulds

1.J Novel hetero-junctions & hetero-structures, Novel material nano-layers (e.g. magnetic nano-layers)

NLAY

1.K Functionalized nano-objects > nano-particles and bio-objects (cells, viruses, …)

FUNCN

1.L Nano-structured surfaces and Nano-surfaces

MEMB Membranes other than bio (e.g. for nano-fiber growth)

UTF Ultra-thin films (mono-layers, Langmuir-Blodgett films…)

MSURF Nano-structured layers, coatings and surfaces: control of morphology at the nano-scale

FSURF Nano-structured layers, functionalized with nanoparticles or grafted molecules
NETW Nano-particle networks on surfaces and Nano-structured surfaces for nanoparticle nucleation or organization

1.M Photonic band gap materials
PHOTX Photonic crystals
NFIBER Nano-structured fibers

1.N Meso- and nano-porous materials
NPOR

1.O Miscellaneous nano-materials
Use free keywords

2. NANO-SCALE FUNCTIONALITIES and NANO-DEVICES

2.0 Nano-manipulation & Quantum control

- MANIP Single object or molecule manipulation
- QCTRL Quantum control of nano-object functions (*i.e.* fluorescence, conformation, reactivity …)

2.1 Nano-mechanics

- NTRIB Nano-tribology (nano-friction, lubrication…)
- ADVNM Advanced nano-mechanics > Studies of functional propagation of information / energy, structural integrity and dynamic performance of nano-mechanisms
- molMAC Molecular machines and motors
- MDEV Novel nano-mechanical devices (NEMS, nano-actuators and nano-sensors)

2.2 Nano-electronics

- molEL Molecular electronics
- MONO Mono-electronics (concerned with the development of discrete digital electronic devices that code information by single electrons)
- NMOS Nano-MOS
- EDEV Other nano-electronics devices and novel structures (incl nano-refridgeration)
- QTR Quantum transport > quantum-scale semiconductor hetero-structures, nanotube supercon-ductivity
- QCOH Electronic circuits with quantum coherence (systems where a collection of particles can be described by a macroscopic wave function), Atomic contacts

2.3 Nanomagnetism and spintronics

- molMAG Molecular magnets
- NMAG Mesoscopic- or nano-scale magnetization and domain wall dynamics. Magnetic nano-switching, nano-recording…
- SOFTM Soft magnets
- SPIN Spintronics >
  - SPINF Spintronics Fundamentals (spin injection, manipulation and transport)
  - SPIND Novel spintronic devices (spin transistors, amplifiers, memories…)

2.4 Nanophotonics

- molOPT Molecular opto-electronics
- PBG Photonic bandgap devices
- PLASM Plasmonics and Plasmonic devices

OE-NLO Nanoscale opto-electronics & nonlinear optics > Fundamentals (e.g. optical self-organization, NLO phenomena) and Devices (e.g. lasers, frequency converters, switches, quantum cascade emitters…)

QOPT Nanoscale quantum optics > emitters of photon states, photon sources with quantum coherence

2.5 Quantum information

QBIT Optical, spin or superconducting qubits

BB4QI Building blocks for Quantum information > gates, memories, atom chips (solid state devices capable of producing light, magnetic and electric fields, which would trap, manipulate and measure atoms hovering a few microns outside the device in ultra high vacuum) …

QCT Quantum cryptography, quantum teleportation, images …

2.6 Nano-fluidics

WETFL Wetting (= nanoscale fluid/solid interaction) and flow (incl nanoscale mixing processes)

FLDEV Nano-fluidic devices

SPRAY Nanospray tips

2.7 Nano-chemistry

NREAC Nano-reactivity & Nano-catalysis

SENS Nano-detection and -sensors (chemicals, pollutants, … but EXCLUDING bio-detection which corresponds to 3.1.)

NSTOR Nano-storage (of molecules or compounds)

2.8 Other functionalities

> "Passive" nano-functionalities

AMIC Antimicrobial treatments

NFILT Nano-filtration, purification and remediation

PTR Passivating surface treatments (wear or corrosion resistance, …)

> Multifunctional nano-materials

MULTI

> Other

Use free keywords

2.9 Nano-bio-sensors

MOLPR Molecular probes (= molecules tailored for interacting specifically with a target bio-molecule. These molecular probes are functionalized with an interaction transducer in order to detect the interaction)

F4BIO Functionalized surfaces and objects for bio applications (typically molecular probes grafted on surfaces)

2.10 Biological nano-tracers for imaging (= use of nano-particles for bio-imaging)

BNTI Note: New microscopy or spectroscopy techniques for nano-scale bio-studies correspond to 5.

2.11 Biomolecule / Drug vectorization or delivery

BMVec

2.12 Elementary bio-processes study

SBMOL Single bio-molecule study (dynamics, interactions…)

BMMECH Bio-membrane mechanisms (cytoplasmic or artificial membranes)

BMIMS Biomimetic systems and elementary bio-processes in artificial nano-bio-structures

2.13 Other

BIOmat Nano-biomaterials (synthetic nano-materials capable of replacing "natural" tissues or restoring disabled or altered bio-functions). Bio-compatible materials.

Also free key words

3. MODELLING and SIMULATION

ThSGrow	Structure growth
ThMP	Mechanical properties
EPSP	Electronic processes relating to spectroscopy (excited states, non-radiative transitions, …)
EPTR	Electronic processes relating to transport (confinement effects, tunneling, …)
ThMag	Nano-scale magnetic behaviour
ThEM	Nano-scale electromagnetism
ThQS	Quantum systems (entanglement, decoherence…)
ThN	Noise and fluctuations

Also use free keywords

4. FABRICATION TOOLS, INSTRUMENTATION and NANO-METROLOGY

4.1 Tools for nano-fabrication

NFAB = laboratory "custom-made" developments and improvements at the edge of technological know-how

Non-exhaustive indicative list:

NLITH	Nanolithography (e-beam, UV/X-Ray…)
NSTER	Nano-stereolithography
FIB	Focused ion beam (FIB) nano-patterning
NIMPR	Nano-imprint techniques

Also use free keywords

4.2 Instrumentation and techniques for nanoscience (= instrumental/experimental developments made specifically to address nanoscience issues)

SYNRAD	Synchrotron radiation
NEUTR	Neutron-based techniques
ELECTR	Electron-based techniques
XRAY	X-ray techniques
NPR	Nano-probes, Nano-scale microscopy and spectroscopy techniques for study of material properties and structures
NPRbio	Nano-probes for bio-processes
NMAN	Nano-manipulation instruments

4.3 Nano-metrology (= science of measurement at the nanoscale, including length or size as well as force, mass, electrical or other properties)

NMETR