The ten most relevant publications ***Indicates when I am the corresponding author.***

1.- Victor F Puntes*, K. Krishnan and P. Alivisatos* **Nanocrystals Size and Shape Controll: the Case of Co** *Science* 291, (2115-2117) 2001. CITED: 607 in 5 years. It was the 3rd more cited 2001-chemistry paper during 2002. IMPACT FACTOR: 31.853 Cited Half Life: 7 years. This is my most cited paper, about principles of size and shape control in nanoparticles synthesis, where I obtained Cobalt nanospheres and nanorods with exquisite control. I chose to study the Co system for several reasons. Co NP display a wealth of size-dependent structural, magnetic, electronic, and catalytic properties. In particular, the exponential dependence of the magnetization relaxation time on volume has spurred intensive studies of Co NP synthesis for magnetic storage purposes. It is difficult to make isolated magnetic NP of Co, in part because the forces between the particles are large. These forces occur due to both the high electron affinity and the high surface tension arising from the partially filled d band, from the large van der Waals forces between polarizable metal particles, and from magnetic dipole interactions. The key was to use mixtures of organic molecules to control NP size and shape.

2.- Victor F Puntes*, Pau Gorostiza, Debora Aruguete, Neus Bastus and Paul Alivisatos **Collective behavior in 2D cobalt nanoparticle assemblie: magnetic force microscopy** *Nature Materials* 3 (263-268) 2004. CITED: 25 IMPACT FACTOR: 13.531 Cited Half Life: 1.6 years (the journal is also very young, first issue September 2002)

3.- Silvio Carrettin, Patricia Concepción, Avelino Corma, Jos. M. Lopez Nieto and Victor F. Puntes **Nanocrystalline CeO2 Increases the Activity of Au for CO Oxidation by Two Orders of Magnitude** *Angewandte Chemie Int. Ed.* 43 (2538-2540) 2004. This paper was chosen Hot Paper in 2004 by the Angewandte Intl. Ed. And the ISI Citation Index. It was published in May 2004 and it collected 31 citations during that year. CITED: 66 IMPACT FACTOR: 9.161 Cited Half Life:5.2 years.

4.- Zoltan Konya*, Victor F. Puntes*, Imre Kiricsi, Ji Zhu, Paul Alivisatos, and Gabor A. Somorjai **Nanocrystal templating of silica mesopores with tunable pore sizes** *Nanoletters* 2, 907-910 (2002). CITED: 26 IMPACT FACTOR: 8.449 Cited Half Life: 2 years (this is also a young journal, first issue: January 2001) *This two authors contributed equally to the work. (the Chem. Mater about the same subject and published later has collected already 38 cites)

5.- Marcelo J Kogan, Neus G. Bastus, Roger Amigo, Dolors Grillo, Eyleen Araya, Ernest Giralt, Victor F Puntes* **Local and remote nanoparticle manipulation of protein aggregation.** *Nanoletters* 6, 110-115, 2006. CITED: 2 (note that this paper is very young IMPACT FACTOR: 8.449 Cited Half Life: 2 years. This is my most recent and exclusive work where we show proof of principle for the remote manipulation and dissociation of toxic protein aggregates, β-amyloid in detail, which is related to the onset of Alzheimer´s disease, with a rupturing technology that I called *Molecular Surgery*. This paper is very young, when it appeared was covered from the *American Chemical Society news service*, *Nano Today Research News*, *International Press News Service*. It appeared also in the *American Journal of Chemical Education*.

6.- Victor F Puntes*, Daniela Zanchet, Can Erdonmez and P. Alivisatos **Synthesis of hcp-Co nanodisks** *Journal of the American Chemical Society*, 124 (12874-12880), 2002 . CITED:131 IMPACT FACTOR: 6.903 Cited Half Life: 8,9 years

7.- Patricia Concepción, Avelino Corma, Joaquin Silvestre-Albero, Victor Franco and Jean Y. Chane-Ching **Chemoselective Hydrogenation Catalysts: Pt on Mesostructured CeO2 Nanoparticles Embedded within Ultrathin Layers of SiO2 Binder** *Journal of the American Chemical Society*, 126 (5523-5532) 2004 CITED: 18 IMPACT FACTOR: 6.903 Cited Half Life: 8,9 years

8.- Eva Barea, Avelino Corma, Xavier Batlle, Vicent Fornés, Amílcar Labarta, Víctor F Puntes*. **Stabilized sub-nanometric cobalt metal particles**. *Journal of the American Chemical Society*, 2005 (December; very young paper); 127(51); 18026-18030. CITED:4 IMPACT FACTOR: 6.903 Cited Half Life: 8,9 years

9.- Victor F Puntes*, A. P. Alivisatos and K. Krishnan **Synthesis, self-assembly, and magnetic behaviour of a two-dimensional superlattice of single-crystal epsilon-Co nanoparticles** *Applied Physics Letters*, 78, 2001 (2187-9). CITED: 103 IMPACT FACTOR: 4.308 Cited Half Life:5.2 years.

10.- X.Batlle, V.Franco*, A.Labarta, M.L.Watson, K.O'Grady. **The effect of the microstructure on the magnetic interactions in CoFe-AgCu granular films** *Applied Physics Letters*. 70 (1), 132-135 (1997). CITED:26 IMPACT FACTOR: 4.308 Cited Half Life:5.2 years.

Information on current or past sources of research funding. Postdoctoral positions:

Since I started my phD I have participated in about 20 research founded projects. In the following list I only present the ones in which I am the principal investigator.

CURRENT RESEARCH FUNDING

P.12.- Project: Ajudes per equipament de Laboratori (Laboratory infrastructure).
Funding Agency: DURSI (catalan government)
Amount: 33.500 **Period:** 2004 **P.I.:** Victor Puntes

P.13.- Project: Set up of synthesis laboratory at the ICN (Laboratory infrastructure).
Funding Agency: ICN (local government)
Amount: 150.000 **Period:** 2005-2007 **P.I.:** Victor Puntes

P.14.- Project: Development of an Integrated Platform for Nanoparticle Analysis. **STRP 032131 DIPNA**
Funding Agency: STRP- UE [CONSORPTIUM]
Amount: 234.000 **Period:** 2006-2009 **P.I.:** Victor Puntes
(project consortium coordinator: Dr. Antonietta Gati, Univeristy of Modena)

P.15.- Project: Sintesis de nanoparticulas y sus ensamblados. **MAT2006-13572-C02-02**
Funding Agency: MEC- SPANISH GOV
Amount: 97.000 **Period:** 2007-2009 **P.I.:** Victor Puntes

P.16.- Project: In-vitro experiments of nanoparticles based biofluids, Subunit of the coordinated project CONSOLIDER NANOBIOMED INGENIO 2010 [CONSORPTIUM]
Funding Agency: MEC- SPANISH GOV
Amount: 240.000 **Period:** 2006-2010 **P.I.:** Victor Puntes
(project consortium coordinator: Pr. Ricardo Ibarra, Aragon Nanoscience Institut)

P.17.- Project: nanoparticulas como activadoras de celulas fagociticas para la eliminacion de depositos proteicos Toxicos del cerebro **SAF2006-26676-E**
Funding Agency: MEC- SPANISH GOV (Program EXPLORA)
Amount: 41.500 **Period:** 2007 **P.I.:** Victor Puntes

P.18.- Project: Synthesis and Design of Conjugates with pharmacological interest
Funding Agency: Endor Inc.
Amount: 150.000 + 1 postDoc **Period:** 2007-2009 **P.I.:** Victor Puntes

P.19.- Project: *Controlled Macrophages Activation mediated by Gold Nanoparticle Conjugates*
Funding Agency: *MUTUA MADRILEÑA (Insurance Company)*
Amount: *400.000 (under consideration)* ***Period:*** *2007-2009* ***P.I.:*** *Victor Puntes*

FUNDED NETWORKS I PARTICIPATE IN

N1.- NETWORKS: Nanostructuration Network
Funding Agency: MEC- SPANISH GOV (Program EXPLORA)
Amount: 100.500 **Period:** 2007 **P.I.:** Xavier Obradors

N2.- NETWORKS: SyntOrbMag Workshop MRTN-CT-2004-005567
Funding Agency: UE-Network of Excellence
Amount: **Period:** 2004-2006 **P.I.:** Michael Farle

N3.- NETWORKS: Magnetic Nanoparticles for Biomedicine
Funding Agency: Catalan Governement Xritcit
Amount: **Period:** 2005-2007 **P.I.:** Alejandro Perez

POST DOCTORAL POSITIONS

1.- 29 month LBL Postdoctoral staff at the College of Chemistry.(2001-2002) Supervisor: Pr. Paul Alivisatos, 1 510-643-2050, alivis@berkeley.edu
2.- 12 months Spanish Ministry Post-Doctoral Grant at NCEM-LBL and UC Berkeley, Berkeley (1999-2001). Supervisor: Pr. Krishnan Kanan, 1 206 543 2814, kannanmk@u.washington.edu

OTHER PERSONAL GRANTS (positions granted through international competitions)

1.- Present position, ICREA researcher at the Institut Catala de Nanotecnologia (June 2005-present). Head: Pr. Jordi Pascual, 34 93 581 4408, Jordi.Pascual@uab.es
2.- About two years Ramon y Cajal position at the Physics department of the University of Barcelona (Feb 2003-May 2005). Head: Pr. Amilcar Labarta, 34 93 402 1155, amilcar@ffn.ub.es
3.- 4 years PhD Grant at the University of Barcelona (1995-1998). Supervisor: Xavier Batlle, 34 93 402 11 55, Xavier@ffn.ub.es
4.- 6 month CSIC Graduate Grant at ICMAB Barcelona (June-November 1994) with Pr. Rafael Rodriguez, 206-543-2814, rrodriguez@icmse.csic.es
5.- 3 years Under Graduate Grant (1991-1994) at Louis Pasteur University, Strasbourg, France

Dr. Victor Franco Puntes.
ICREA Researcher (www.icrea.es/ca/investigadors/Rdo_investigadors.asp?id=350)
Institut Català de Nanotecnologia
Nanoparticles Laboratory.
DNI 43421815 T
Born in Barcelona the 5th July of 1970
Married 16 July 2004. One son, born 21 june 2006
Victor.Puntes@icrea.es
Victor.Puntes@uab.es
34 93 592 99 65
34 678 459 006

(continues from page 6 of the application)

2003-2005. Finding a position for independent research in Spain: In February 2003, after 41 months at Berkeley and a short break, I was back again to Barcelona, to the physics department of the UB, with a five year research contract (Ramon y Cajal program) with the objective of setting up a NP synthesis laboratory for the production of engineered NP with customized properties. I rapidly establish contacts with different groups as the one of heterogeneous catalysts of Pr. Avelino Corma at the ITQ [*32,33,36,37,42*] or the biochemistry and cellular biology groups of Pr. Antonio Celada [*53*, P.18] and Pr. Ernest Giralt [*43*] at the PCB-UB, with whom I establish fruitful collaborations, while still studying the synthesis of NP with biological interest [dispersible in water,*39*], the magnetism of NP [*42*], its collective magnetic behaviour (and emergent properties) [*34*] and its self assembly [*40*]. In June 2005 I changed from institution and I moved to my present position, the Catalan Institute of Nanotechnology where I could be *finally* an independent researcher and better develop my projects. In October 2005 I got a permanent position as an ICREA researcher at the same institute with the intention to create and lead a group based on inorganic nanoparticles. Since then I have had and intense activity from setting up the lab to obtain grants to run it.

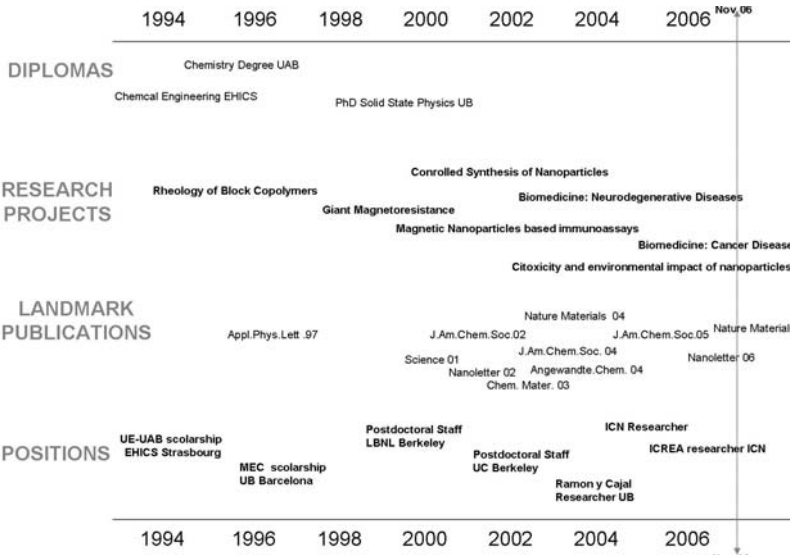
1999-2003. From Magnetic Nanostructures to Magnetic Nanoparticles. After finishing my PhD on the magnetic properties of granular alloys, I went to the NCEM at the LBL at Berkeley with the intention of studying the structure-properties relationship at the nanometre (molecular) scale of nanomagnets after workers at IBM Yorktown developed a colloidal synthesis of monodisperse cobalt NP by reducing cobalt chloride. I decide to prepare such samples redesigning the synthesis to avoid the reduction step. The work on synthesis increased enormously and few months later I was moving to Pr. Paul Alivisatos lab in the College of Chemistry at UC Berkeley where soon we published the size and shape controlled synthesis of Cobalt NP [*20*] and the synthesis of cobalt nanodisks [*22*]. In the meanwhile I kept on studying magnetic properties [*18*] while I expanded my research interests towards heterogeneous catalysis [*23*], and biomedical applications of NP [*25*], both with the aim of developing sustainable (green chemistry) and friendly (non invasive) technologies. At that time I also worked in collaboration with Pr. John Clarke and Pr. Mark Alper to develop and improve an ultra-sensitive Immunoassay based on magnetic NP [PNAS 97, 14268 (2000)]

1994-1998. From Chemistry to Solid State Physics: After spending 3 years in Strasbourgh I went back to Barcelona with a short scholarship of the ICMAB with Professor Rafael Rodriguez to study the growth of hidroxyapatite as substrate for bone tissue reparation. That was 1994. Few months later, at the UB I did start my PhD in solid state physics, on the control of the magnetoresistive response of thin films of conducting material (as Ag) where magnetic nanoparticles (as Co) where dispersed. This was substantially different from my college studies of Chemistry. However I have the impression that the approximation to the molecular level of materials, first from the chemistry point of view (polymers, alloys, ceramics…) and then from the solid state point of view (electron mean free path, electromagnetic dipoles, cooperative effects…) brought me to deepen on control at the nanometric scale. During my PhD I observed magnetic percolation in thin films of granular alloys before topographic percolation [*8*] unveiling collective effects mediated by the conduction electrons. In addition, the magnetic microstructure resulting from the competition between exchange and dipolar interactions and shape anisotropy, produced a variety of domain patterns highly dependent on the thermomagnetic history [*4,5,12*]. The knowledge gathered during the PhD years could not be understood without regular stays at foreign institutions.

1991-1994. A European Degree in Chemistry: In the second half of my chemistry degree studies I moved from Spain to France. At the EHICS (European High Institute of Chemistry of Strasbourg), where lectures were in French, English and German, and the students come from all over Europe, I specialized in Material Science and I developed a final project on the rheological properties of block co-polymers.

NOTE: Changing from area of expertise, from chemistry to physics to biology is costly, so periods of apparent low productivity (reduced number of publications) happens when a new are is entered. However, the rapid development of projects and preliminary successes indicate the power of the proposed technology based in the control of the organic molecules reactivity by the inorganic core which scaffolds it.

RESUME TIME LINE



Blending Physics and Chemistry with Biology for nanotechnology

CURRENT POSITION
Head of the Nanoparticles Laboratory at the Institut Català de Nanotecnologia (www.n g.) member of the prestigious Catalan Institute of Research and Advanced Studies (ICREA, www.icrea.es).

PREVIOUS POSITION

2003-2005	Ramon y Cajal researcher (first position, Materials Science, 2002) since February 2003 at the Physics department, UB.
2000-2002	Postdoctoral Appointment College of Chemistry UC Berkeley (Pr. A Paul Alivisatos)
1999	Postdoctoral Appointment at the NCEM at the LBNL Berkeley (Pr. Krishnan M Kannan)

EDUCATION

1994-1998	PhD in solid state Physics, University of Barcelona, UB (Advisor: Dr. X. Batlle) s*uma cum laude*
1991-1994	Chemical Engineer at EHICS, Strasbourg, France 8/10
1989-1994	Chemistry Degree at the UAB, Spain 9/10

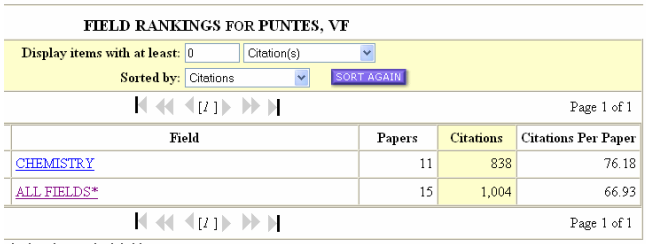
LANGUES English, French, Spanish and Catalan Fluently
German basic concepts (I had lectures and exams in German at EHICS).

STAYS IN FOREING RESEARCH INSTITUTIONS

2000-2002	29 Months at the College of Chemistry at the UC Berkeley (US) Pr. A. Paul Alivisatos.
1999-2000	12 Months at the NCEM at the LBNL Berkeley (US) Pr. Krishnana Kannan
1996-1998	8 Months School of Electronic Engineering de la University of Wales (UK). Pr. Kevin O'Grady
1997	1 Months Institut de la Physico-Chimie du Solide de Strasbourg (France) Dr. Kamel Oudnajela
1997	3 Months Physics Department, Université de Versailles, (France). Pr. Jean Louis Dormann
1995	3 Months Centre for Data Storage Materials de la University of Coventry (UK). Pr. Mark Watson
1991-1994	3 years at EHICS, Strasbourg, France.

EXPERIMENTAL EXPERTISE (I am an independent researcher in the following techniques)
TEM (Bright Field, Dark Field, Selected Area Electron Diffraction, EELS, EDAX), XRD (I took care of a D8 GAADS Bruker Machine during my 2nd postdoc), AFM – MFM, Schlenk-lines, Glove Boxes and atmosphere controlled synthesis, Colloidal synthesis, Electrophoresis, SQUID Magnetometer, VSM (Vibrating Sample) Magnetometer, Spectroscopies (UV-VIS, FTIR XPS,), wet chemistry synthesis, conjugation and nanoparticles manipulation

STATISTICS. In the ISI essentials only appear 15 references, this is (among other) because I have accumulated different spelling errors (PuEntes) and I have been signing papers as Franco or Franco-Puntes. By the way, I am the only Puntes V in the scientists world. Also, I am the first, last and/or corresponding author of those 15 papers.



FIELD RANKINGS FOR PUNTES, VF

Display items with at least: 0 Citation(s)

Sorted by: Citations SORT AGAIN

[1] Page 1 of 1

Field	Papers	Citations	Citations Per Paper
CHEMISTRY	11	838	76.18
ALL FIELDS*	15	1,004	66.93

[1] Page 1 of 1

nked and unranked fields.

*In here I have an Hirsch parameter of 12. Which is not very impressive, however if we normalized it by time (since the H parameter is intended to compare senior scientists) and I divided by 8 (years after the phD) I got a M parameter of 1,5, but if I re-normalized again by the years passed since my first **Puntes** publication then I have an M of 2,4. In the Hirsh paper after 20 years of career, a notorious scientist should have a M parameter of 2. Off course this are just numbers*

ISI ESSENTIAL SCIENCE INDICATORS - SCIENTISTS

To understand these counts I would like to say that I did my PhD in a small group. When I finished my studies of Chemistry and Chemical Engineering I wanted to complete my formation studying solid state physics to understand matter properties and I found a group which proposed me a PhD on Giant Magnetoresistence (GMR), a field, physics, where I was a newcomer. The group and the subject were modest and therefore was my scientific contribution (111 citations in 12 papers) however, this peaceful PhD was extremely useful to me to learn physics (electromagnetism) what has been extremely useful for nanotechnology. The benefits I harvested them during the postDoc stage at Berkeley. Since I finished my phD in December 1998 until my first results in 2000 I spend some months first in Spain waiting for the grant, the visa, etc… and some months at Berkeley settling down and starting a new research line (no-one in Berkeley was synthesizing Co NP when I did arrive).

Similarly, my apparent scientific production may look timid during last 12 months, but in fact it has been one of the most exciting periods of my scientific advances. On top of it all I got the responsibility to start a new independent group at the ICN about one year ago, so the time for reporting (not for researching) has been dedicated to set up the lab from blank walls to a running lab today together with intensive work on research bringing together physics, chemistry and biology.

TRANSFER OF KNOWLEDGE:

Clearly, stronger than nanoscience seems nanotechnology. This is related to the ability of nanotechnology to control matter at the nanometric level and to construct materials with customized properties in an unique way. Therefore, there is a strong drive for innovation and business development to which I am receptive. Thus, since I lead my own research group I have been establishing different channels of communication to develop company's projects.

Endor Nanotechnology: I am co-promoter of this Spin Off which aims to produce NP and develop nanotechnology tools (nanoparticle conjugates) for biomedical research. As much as providing products as developing partnerships with the costumers. http://www.endornanotech.com/ Contact Person: Joaquin Querol, joaquin.querol@endornanotech.com

Nanonica : I am at the advisory board of this recently created Swiss based company devoted to transfer knowledge from the universities to the industry. My task is to evaluate the feasibility and reasonability of the projects proposed from UE universities to sell them to companies. www.nanonica.com. Piergi@ingonegocio.com

PATENTS AND UTILITY MODELS

1.- Gregory Peter Denbeaux, Victor F Puntes, Gregorz J Kusinski Irradiation Patterning with a Self Assambled Mask: IB-1731P: US: 20/12/01: Lawrence Berkeley National Lab

2.- Paul Alivisatos and Victor F Puntes Colloidal Synthesis of Magnetic Nanodisks. Under Consideration: US: Lawrence Berkeley National Lab

3.- The work published in ref.37 in collaboration with Avelino Corma has been also patented (under process).

TEACHING

I was teacher laboratory assistant (classical mechanics and electromagnetism) for 3 terms at UC Berkeley (1 academic year) for students of Biology, Architecture and Physics.

I have been teaching advanced laboratory techniques (scanning probe microscopy) for the master courses of the Materials Science Degree of the University of Barcelona (4 courses in 2 years).

I have also taught in the Summer Lectures of the University of Barcelona 2003 and 2004, in the courses about Science and Arts (Ciencia I art: Un matrimony (im)possible; Ciencia I art: espurnes d'amor) and

other activities in the local Science and Natural Sciences Museums, through the Observatori Cientific de la Ciutat Mediterranea (OCCM).

I am supervising 3 PhD Thesis (Neus Bastus, Eudal Casals, Pedro Echevarria) and one postdoc (Maria Socorro Vazquez), co-supervising Ana Ariazaga`s (ITQ-Valencia) and the experimental work of last year students Josep Antoni Patiño (UB-Chemistry) and Martí Fabregas (UPC-Image analysis). Before that, I have been supervising the experimental work of Deborah M Aruguete and Can Erdonmez at the College of Chemistry of the UC Berkeley, Guangjung Cheng at the University of California at Davis and Yuping Bao at the Materials Science Department from the University of Washington (Seattle).

I taught the synthesis techniques to people coming from UCLA, UCSB, University of Washington, ITQ and U. Liverpool (I appear in the acknowledgement of their respective contributions). My knowledge in nanoparticles synthesis and characterization was also key in the first developments for a particular heterogeneous mixed porous-nanoparticles catalysts with Pr. Gabor Somorjai.

I organized an small international workshop host by the Catalan Institute of Nanotechnology on organic – inorganic molecular scale hybrids (September 2005). I participated in the Organizing Committee of the III International Workshop on Fine Particles Magnetism, Barcelona (October 1999).

Now I am leading Catalan, Spanish and European projects and directing a group on the synthesis and applications of engineered nanoparticles. A strong effort is dedicated to supply nanotechnologies for the life sciences.

OTHER

1.- I also form part of the local nanotechnology initiatives as the Spanish Nanociencia and Nanospain networks, and the Catalan Magnetic Nanoparticles for Biomedical Applications Network. I was member of the American Material Research Society and the American Chemical Society.

2.- My scientific activity is also reflected in the referee tasks I currently develop, some of them have been: Nature Materials, Nanoletters, Journal of the American Chemical Society, J. of Appl. Phys, Thin Solid Films, Surface Science, J. Phys. Chem, Acta Mater, Solid State Communications, and also for Catalan, Spanish and Argentina funding agencies.

3.- PhD Jury Member: Dr. Eva Barea. Acidos Salicilicos como Catalizadores y Fuentes de Silicio/Metal para Zeolitas. Universidad Politecnica de Valencia, Valencia, Spain, 19 Sept. 2005.

4.- PhD Jury Member: Dr. Olivier Margeat. Effets de taille et de surface sur les propriétés physiques de nanoparticules superparamagnetiques. Université Paul Sabatier, Toulouse, France, 28 Sept. 2005.

5.- Director of Research Habilitation. Dr. marc Respaud. Magnetic Nanoparticles Laboratory. Université Paul Sabatier, Toulouse, France, 7 Sept. 2006.

6.- Master Thesis Jury Member. Elena Taboada. Ferromagnetic Nanoparticles for Image Contrast Agents, ICMAB, 5 sept 2006

7.- PhD Jury Member: Dr. Anna Lagunas. New Oxidation Routes for Cobalt Nanoparticles. ICIQ, Tarragona, 15 January 2007 (I am already making the report).

SCIENCE AWARENESS, SCIENCE EDUCATION AND SCIENCE COMMUNICATION

"The most beautiful experience we can have is the Mysterious. It is the fundamental emotion that stands at the cradle of true art and true science. Whoever does not know it and can no longer wonder, no longer marvel, is as good as dead, and his eyes are dimmed." Albert Einstein, The World As I See It 1931.

My science divulgation activity devoted to excite scientific vocation and aiming to shape the coming generation of scientists. Since I stop teaching I started activities in science communication to non specialised audiences, through divulgative talks, and NP-self assembly microscopy pictures. This brought me in contact with other creative communities, as artist and open source software developers. I benefit from this relationship: on one side the speech has to be extra-clear in order to pass it to non specialized audiences and on the other, their collaborative organization and creative mechanisms taught me about team organization and creative exploration.

Nanoparticles SelfAssembly Microscopy Picture Solo Art Exhibitions (selected):

ARTIFICIAL LANDSCAPES, Consortium for the Science and the Arts UC Berkeley August 2002
PROMENADE in NANOLAND Sala Metronom Barcelona February 2004
NANOPIMATMOLEC (nanoparticules i materials moleculars). Universitat Autonoma de Barcelona Spring-Summer 2005
THE LAB BOX and INSIDE THE MATER. Museo Universitari d'Alacant, December- January 2005

NANOPARTICULAS NANOMETRICAS and THE WAY TO SEE THE LIGHT: DARK FIELD Galeria Newton, December-January 2005-2006, Madrid.
NANONAUCO La galeria del libro, San Francisco, 15-30 August 2006

My artistic activities do not compete with my efforts in scientific exploration since it consist in a simple transposition of the scientific work into another context. My artistic activity is devoted to approach cutting edge and general science to a broad public, stimulate scientific vocation and aiming to communicate with the coming generation of scientists. All the pictures exhibitions have been accompanied by divulgative talks.

I got two funded projects from the Catalan department of culture, one last year (3500 E) and a second one this year (9000 E) to exhibit TEM images in non scientific contexts, entitled: **NANONAUTES: THE HABITANTS OF NANOLANDIA**.

FULL PUBLICATIONS IN REFEREED (PEER REVIEWED) JOURNALS (1996-2005)

Above 50 publications, 5 Proceedings($^{+}$) and 4 book chapters($^{++}$) that have collected over 1200 citations.

The reference 20 on synthesis of Cobalt (CITED 607) was the 3rd more cited 2001-chemistry paper during 2002. And the reference 33 was chosen hot topic by the ISI and the Angewandte editorial office (cited 31 in less than 12 months).

NOTE: publications appear as victor franco, victor franco puntes, victor f puntes and victor puntes. In addition, for evident reasons some of my citations have been made to Victor PuEntes instead of Victor Puntes

***Indicates when I am the corresponding author (virtually in all of them).**

1996
1^{++}.- X.Batlle, M. Garcia del Muro, V.Franco, A.Labarta, J.M. Gonzalez, M.L.Watson, K.O'Grady *Interactions and demagnetization in nanostructured magnetic materials: Nanocristalline particles and granular films* **Magnetic hysteresis in novel magnetic materials** Ed G.C. Hadjipanayis, Editorial Kluwer Academic publishers (401-405) 1996.

2^{+}.- X.Batlle, V.Franco, A.Labarta, M.L.Watson, K.O'Grady *The stabilisation of an antiferromagnetic-like microstructure below the volume percolation threshold in CoFe-AgCu granular films* Proceedings of the Fine Particle Magnetism, 2nd **International Workshop in fine particle magnetism**, School of Electronic Engineering and Computer Systems. University of Wales, Bangor (Wales, UK), 2-5 September 1996.

1997
3^{++}.- V.Franco, X.Batlle, A.Labarta. *From GMR to AMR in CoFe-Cu samples, the role of the ferromagnetic concentration* **Mechanically Alloyed, Metastable and Nanocrystalline Materials** 2 (895-900) 1997. Ed. M.D. Baró and S. Suriñach, Editorial Trans Tech Publications, 1997

4.- V.Franco, X.Batlle, A.Labarta, M.L.Watson, K.O'Grady. *From demagnetizing to magnetizing interactions in CoFe-AgCu granular films*. **J. Appl.Phys.** 81, 4593-4597 (1997).

5.- X.Batlle, V.Franco, A.Labarta, M.L.Watson, K.O'Grady. *The effect of the microstructure on the magnetic interactions in CoFe-AgCu granular films* **Appl.Phys.Lett.** 70 (1), 132-135 (1997).

1998
6.- V.Franco, X.Batlle, A.Labarta. *Magnetic microstructures from magnetic force microscopy and Monte Carlo simulation in CoFe-AgCu granular films* **IEEE Trans. on Magn.** 34, 912-914, 1998

1999
7.- V.Franco*, X.Batlle, A.Labarta. *Magnetic and transport properties of giant magnetoresistive CoFe-Cu granular alloys: from non-interacting particles to magnetic percolation* **J. Appl. Phys**. 85 (7328-35) 1999

8.- V.Franco*, X.Batlle, A.Labarta, P. Bases, F. Sandiumenge. *Texture, strain and alloying in sputtered granular magnetic films* Acta Metall Mater. **Acta Materialia**, 47 (1661-70) 1999

9.- V.Franco*, X.Batlle, A.Labarta, P. Bases, F. Sandiumenge. The microstructure of CoFe-Ag(Cu) granular films: Origin of the Perpendicular Anisotropy **J. Magn. Mag. Mat ,** 196-197(274-6) 1999

10.- V.Franco*, X.Batlle, A.Labarta. *Training behaviour and magnetic domains in CoFe-Ag(Cu) granular films* **J. Magn. Mag. Mat.** 196-197(465-6) 1999

11[+].- X. Batlle, Victor Franco and A. Labarta *Magnetic Force Microscopy: A power full tool to image domain structures in granular films* Invited paper **Materials Science Forum**, Prague, 1999

2000

12.- V.Franco*, X.Batlle, A.Labarta, *Evidence of domain wall scattering in thin films of granular CoFe-AgCu* **Eur. Phys. J. B** 17, 4350 (2000)

13.- V.Franco, X.Batlle, A.Labarta, *Remanence breakdown in granular alloys at magnetic percolation* **Journal of Applied Physics** 88 (1576-1582)2000

14.- V. Franco*, X.Batlle, A.Labarta, *CoFe based granular alloys: the role of the metallic matrix* **J. Magn. Magn. Mater.,** 210 (295-301) 2000

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19.- Victor F Puntes* and K. Krishnan *Synthesis, structural order and magnetic behavior of self-assembled epsilon -Co nanocrystal arrays.* **IEEE Transactions on Magnetics** 37, 2210-12, 2001

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21.- Victor F Puntes*, K. Krishnan and P. Alivisatos *Synthesis Of Colloidal Cobalt Nanoparticles With Controlled Size And Shapes* **Topics in Catalysis**, 19 (145-148) 2002.

22.- Victor F Puntes*, Daniela Zanchet, Can Erdonmez and P. Alivisatos *Synthesis of hcp-Co nanodisks* **Journal of the American Chemical Society**, 124 (12874-12880), 2002 .

23.- Victor F. Puntes*, Zoltan Konya, Imre Kiricsi, Ji Zhu, Paul Alivisatos, and Gabor A. Somorjai *Nanocrystal templating of silica mesopores with tunable pore sizes* **Nanoletters** 2, 907-910 (2002)

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25.- Victor F Puntes*, W. Parak and P. Alivisatos *Tuning the SP to FM transition in view of biomedical applications* **European Journal of Cells and Materials** 3, (128-131), 2002

26.- Zoltan Konya, Victor F Puntes, Imre Kiricsi, Ji Zhu, Paul Alivisatos, and Gabor A. Somorjai *Novel two-step synthesis of controlled size and shape platinum nanoparticles encapsulated in mesoporous silica* **Catalysis Letters**,79 (35-37) June 2002

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31.- Victor F. Puntes* i Joan Esteve *Nanopartícules: molécules inorgániques* **Revista de la Societat Catalana de Física** 24 (38-42) 2003

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32.- Patricia Concepción, Avelino Corma, Joaquin Silvestre-Albero, Jean Y. Chane-Ching and Victor Franco-Puntes *Chemoselective Hydrogenation Catalysts: Pt on Mesostructured CeO2 Nanoparticles Embedded within Ultrathin Layers of SiO2 Binder* **J. Am. Chem. Soc.** 126 (5523-5532) 2004

33.- Silvio Carrettin, Patricia Concepción, Avelino Corma, Jos. M. Lopez Nieto and Victor F. Puntes *Nanocrystalline CeO2 Increases the Activity of Au for CO Oxidation by Two Orders of Magnitud* **Angewandte Chemie Int. Ed.** 43 (2538-2540) 2004.

34.- Victor F Puntes*, Pau Gorostiza, Debora Aruguete, Neus Bastus and Paul Alivisatos *Collective behaviour in two-dimensional cobalt nanoparticle assemblies observed by magnetic force microscopy*" **Nature Materials** 3 (263-268) 2004

35.- Victor F Puntes* *Nanostructuras de Cobalto* **Investigación y Ciencia** (spanish edition of Scientific American), 332 (38-40) 2004

36.- Patricia Concepción, Carlos López, Agustín Martínez and Víctor F. Puntes. *Characterization and catalytic properties of cobalt supported on delaminated ITQ-6 and ITQ-2 zeolites for the Fischer–Tropsch synthesis reaction* **Journal of Catalysis**, 228, 321-332 (2004)

37.- Eva Barea, Patricia Concepción, Carlos lopez, Avelino Corma and Victor F Puntes *A New Synthetic Route to Produce Metal Zeolites with Subnanometric Magnetic Clusters* **Chem.Commun**. 17, 1974–1975 (2004) (this work has been also patented)

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38 Guangjun Cheng, Victor F. Puntes and Ting Guo. *Synthesis and self-assembled ring structures of Ni nanocrystals* J**. Colloids and Surface Science** 293, 430-436 (2005).

39.- N T K Thanh, V F Puntes, L D Tung and D G Fernig *Peptides as capping ligands for in situ synthesis of water soluble Co nanoparticles for bioapplications.* **J. Phys. Conf. Ser.** 17 (70-76) 2005.

40.- Victor F Puntes*, Neus G Bastus, Ignacio Paganoparraba, O. Iglesias, Amilcar Labarta and Xavier Batlle *Nucleation phenomenon in nanoparticle self-assemblies"Principles of Colloidal Nanoparticle Self Assembly* **Int. J. Nanotechnology** 2 (62-70) 2005

41.- B.J. Hattink, M. García del Muro, Z. Konstantinović, V.F. Puntes, X. Batlle, A. Labarta and M. Varela. *Electrical Properties in granular Co-ZrO2 thin films* **Int. J. Nanotechnology** 2 (43-61) 2005

42.- Eva Barea, Avelino Corma, Xavier Batlle, Vicent Fornés, Amílcar Labarta, Víctor F Puntes*.*Stabilized sub-nanometric cobalt metal particles*. **J. Ame. Chem. Soc** 2005; 127(51); 18026-18030

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43.- Marcelo J Kogan, Neus G. Bastus, Roger Amigo, Dolors Grillo, Eyleen Araya, Ernest Giralt, Victor F Puntes* *Local and remote nanoparticle manipulation of b-amyloid aggregation*. **Nanoletters** 6, 110-115, 2006

44.- Neus G. Bastús, Marcelo Kogan, Roger Amigó, Amílcar Labarta, Eyleen Araya, Dolors Grillo-Bosch, Ernest Giralt, Antonio Turiel, Victor F. Puntes**Nanoparticle-Mediated Local and Remote Manipulation of Protein Aggregation* **Materials Science and Engineering C** 2006 (in press, available on-line #90)

45.- Oscar Gallego and Victor Puntes* *What can nanotechnology do to fight cancer?* **Clinical and Translational Oncology** 8(11):1-000 (2006)

(the following results will be made public during the EURYI06 evaluation process):

46.- Andreu Cabot, Victor Puntes*, Lluis Balcells and Paul Alivisatos *Surface Magnetism in Hollow Maghemite Nanoparticles* **Nature Materials** In press.

47.- Neus Bastus and Victor Puntes* A theoretical study of the dissipation mechanisms of inorganic nanoparticles for local and remote hyperthermia **International Journal of Hyperthermia** *In Press*

48.- N. Bastus, E. Mendoza, L. Lechuga and V. Puntes* *Potential toxicity of engineered nanoparticles* **Trends in Analitical Chemistry**. submitted Invited

49.- Antoni Mairata I Payeras, Anna Lagunas, Ciril Jimeno, Miquel A. Pericàs and Victor Puntes* *Orbital Magnetism and Superparamagnetism in Antiferromagnetic CoO Nanoparticles* **Appl. Phys. Lett.**. Submitted

50.- Neus Bastus and Victor Puntes* *Anisotropic Self Assembly: Chains and Ribbons of Co nanoparticles.* **J. Phys. Chem. B.** Submited

51.- Victor Puntes and *While Scientists are still wondering, Industry is already selling.* **Nature Nanotechnology** *Submitted*

52^{++}.- Victor F Puntes and Nguyen Thi Kim Thanh "*Biofunctionalization of magnetic core-shell nanoparticles*" for the second volume of the series entitled "**Nanofabrication towards biomedical applications -Biofunctionalization of nanomaterials**". *(in preparation)*

53.- Neus G. Bastús, Antonio Celada, Jordi LLoberas, Ester Sanchez, Ernest Giralt, Victor Puntes* *Nanoparticle-bioconjugates controlled Macrophages Activation (in preparation)*

CONFERENCES (2002-2006)
I have an intense activity in exchanging information through conferences, but mainly through invited talks and visits to departments and specialized workshops.

1. Víctor F Puntes, Pau Gorostiza and A. Paul Alivisatos **Dipolar Interactions in Magnetic Nanoparticle Colloids** Poster Gordon Research Conference in Self Assembly, Colloids and Polyelectrolytes Santa Barbara (CA). USA February 2002

2.- Víctor F Puntes, Zoltan Konya, Can Herdonez and P. Alivisatos **Mechanisms of Metallic (Co, Ni, Fe, Au, Pt) Nanocrystal Growth** Oral Magnetic Reasrch Society Spring Meeting San Francisco Abril 2002

3.- Víctor F Puntes and A. Paul Alivisatos Inorganic Nanomaterials Oral **Opening at the Molecular Foundary*** Berkeley (CA). USA April 2002

4.- Víctor F Puntes, Wolfgang Parak and A. Paul Alivisatos **Tuning the SP to FM tranistion in view of biomedical applications** Oral Scientific and Clinical Applications of Magnetic Carriers Thalahasse (FL). USA May 2002

5.- Victor Puntes **Applicaciones Biomedicas de Nanoparticulas** Oral II Red Nacional Nanociencia UAB, Octubre 2002

6.- Robert M. Rioux, Zoltán Kónya, Victor F. Puntes and Gabor A. Somorjai **High Surface Area Model Catalysts: Pt and Au uniform nanoparticles encapsulated in mesoporous silicate materials** American Chemical Society Meeting ORAL Boston August 2002

7.- Victor F Puntes Nanoparticles. **Building Blocks and Built Structures** Oral Phynecs- Complex Systems from biology to theory, Sant Feliu de Guixols 13-18 Jun 03

8.- Victor F Puntes, Pau Gorostiza, Deborah Aruguete and Paul Alivisatos **Ferromagnetic Like Behavior in 2D Co SA** Poster Clusters, nanoparticles and nanostructures, GRC 03, New London CT (near Boston US) 3-8 Aug 03

9. Victor F Puntes **Nanoparticles for Bioanalisis** Oral Nanocrystal for Nanoscience NANAX 03 Munich University 6-8 Oct03

10. Victor F Puntes, Xavier Batlle, Amilcar Labarta **Nanoestructuras de Cobalto** Poster III Red Nacional Nanociencia OVIEDO 25-28 nov 03

11. Victor F Puntes, Neus G Bastus, Xavier Batlle, Amilcar LAbarta **Self Assembled Cobalt Nanostructures** Poster Nanospain 04 San Sebastian 10-12 Mar 04

12. Victor F Puntes, Neus G Bastus, Xavier Batlle, Ignacio Paganoporraba, Amilcar Labarta **Mirror Deposition of Metallic Nanoparticles** Poster GEFES (grupo de física del estado sólido) 04 San Sebastian 1-3 Jun 04

13. Victor F Puntes, Nugan NyGen Than **Magnetic Nanoparticles as Biochemical Probes** Poster Gordon Research Conference-Bioanalytical Sensors (Oxford) 4-9 Jul 04

14. .- N T K Thanh, V F Puntes, L D Tung and D G Fernig "**Peptides as capping ligands for in situ synthesis of water soluble Co nanoparticles for bioapplications**." Fifth international conference on fine particle magnetism 20–22 September 2004, University College London, UK

15. Victor F Puntes, Pau Gorostiza, Deborah Aruguete and Paul Alivisatos **Collective Behavior in 2D Cobalt Superlattices** Oral IV Congreso de Microscopía de Efecto Túnel, Vic 21-24 Sept 04

16.- Victor F Puntes, Marcelo J Kogan, Neus G. Bastus, Roger Amigo, Dolors Grillo, Eyleen Araya, Ernest Giralt, Amilcar Labarta. **Local and remote nanoparticle manipulation of β-amyloid**. Oral Nuevas tendencias en la investigación de nanoestructuras (Vigo) 7-8 March 05

17.- Víctor F Puntes, Eva Barea, Avelino Corma, Xavier Batlle, Vicent Fornés, Amílcar Labarta. **Stabilized sub-nanometric cobalt metal particles** Oral NANOSPAIN 05 (Barcelona) 14-17 March 05

18.- Guangjun Cheng, Victor F. Puntes and Ting Guo**. Self-assembled Ring Structures from Synthesized Ni Nanocrystals** Oral MRS Spring Meeting San Francisco 28 March-1 April 05

19.-Victor Puntes **Nanoparticles in Mesopores** Invited Oral 3rd NANOMETCAT MEETING, Tarragona, June 27-28, 2005

20.- Victor Puntes Meeting of the European **supporting regions in nanobiotech** 29-30 June 2005 Lyon France

21.- Victor Puntes **Organic – inorganic molecular scale hybrids** 7 September 2005 ICN international Workshop (speaker and workshop chair)

22.- Victor Puntes **Magnetism of Some Nanoparticles** (FM, AFM, FRRIM) Invited Oral Marie Curie Research Training Networks "SyntOrbMag" Workshop MRTN-CT-2004-005567 INSA Toulouse 10 October 2005

23.- Victor Puntes REPARTIR+ Workshop on **synthesis of nanoparticles and carbon nanotubes**. Bilbao 23-24 Enero 2006

24.- Victor Puntes **Promenade in Nanoland** Invited Oral Marie Curie Research Training Networks "SyntOrbMag" Workshop MRTN-CT-2004-005567 Vigo March 2006

25.- Neus Bastus, Ester Sanchez, Marcelo Kogan, Silvia Pujals, Ernest Giralt, Antonio Celada, Jordi LLoberas, Víctor F Puntes **Gold Nanoparticles for biology: synthesis and detection** Oral NANOSPAIN 06 (Pamplona) 20-25 March 06

26.- Ernest Mendoza, Victor Puntes, Laura Lechuga **Fabrication of carbon nanotube based biosensors** Oral NANOSPAIN 06 (Pamplona) 20-25 March 06

27- Victor Puntes. **Tox or not Tox? Toxicidad Potencial de Nanopartículas**. Jornadas Vodafone. Cadiz. 15-17 April 2006

28.- Neus Bastus, Victor Puntes **A theoretical study of the dissipation mechanisms of inorganic nanoparticles for local and remote hyperthermia.** Scientific and Clinical Applications of Magnetic Cariers, Austria May 06

29.- Neus Bastus, Ester Sanchez, Marcelo Kogan, Silvia Pujals, Ernest Giralt, Antonio Celada, Jordi LLoberas, Víctor F Puntes **Nanoparticle-Mediated Local and Remote Manipulation of Protein Aggregation** E-MRS Nice, France, May 2006

30.- Victor Puntes. **Ferromagnetic-like behavior in 2d co np assemblies; magnetic force microscopy**. Organizing Molecules on Surfaces. Platja d'Aro, Spain, June 2006

31.- Victor Puntes. **NP as biological Probes** Conference ASEVA – Avila 25-29 September 2006. Speaker and Session Chair.

32.- Victor Puntes **Magnetic and Metallic NP for Biomedicine**. Workshop Xarxa Temàtica Nanopartícules Magnetiques per Biomedicine, Physics Department UB 2 October 2006

33- Victor Puntes. **Tox or not Tox? Toxicidad Potencial de Nanopartículas**. Jornadas Vodafone. Institut Estudis Catalans. 5-6 October 2006

34.- Victor Puntes. **The life of a NP incide the cell.** Trobades Científiques de la Mediterrànea, Mahó 9-12 October 2006

35.- E. Mendoza, J. Orozco, V. F. Puntes, C. Jimenez and C. Fernandez, **Carbon Nanotube based electrochemical (bio)sensors** Oral, MRS Fall meeting, Boston November 27 - December 1, 2006

36.- Victor Puntes. **Assessing In vitro NP citotoxicity**. Workshop NanoBioMed. College of Pharmacy, 22 November 2006 (speaker and workshop chair)

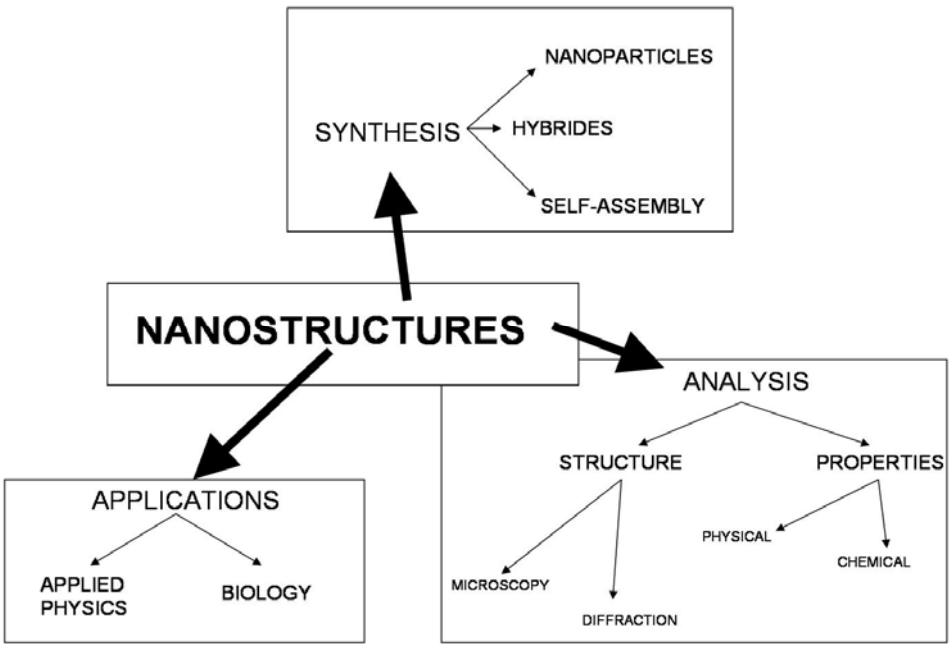
37.- Neus Bastus and Victor Puntes **Protein and Nanoparticles mixed structures** Jornada de nanofabricación 23-24 Nov. Parc Científic Barcelona.

XX.- Victor Puntes ***Nanotechnologies in Cancer Research*** *XI Congreso de la ASEICA 10-12 Mayo Las Palmas (this still has to happen but I would like to stress that I have been invited to give a plenary talk in a cancer research meeting in the recent advances in cancer research section) .*

INVITED SEMINARS ON NANOPARTICLES (2002-2006)

1. Department of Fisica Quimica-(UB) December 2002
2.- Advanced Light Sources Seminar Series. (Berkeley). March 2002
3.- Víctor F Puntes Department of Biochemistry, UCLA. (Los Angeles). USA July 2002
4.- ICMM-CSIC Insituto de Ciencia de Materiales de Madrid (Madrid) 21 January 03
5.- ICFO-UPC-Instut de Ciencies fotóniques (Barcelona) 27 January 03
6.- ITQ-CSIC- Institut de Tecnologia Quimica (Valencia) 21 February 03
7.- RENFE-CSIC- Instituto de Magnetismo Aplicado (Madrid) 5 March 03
8.- DIPC-UPV-Donostia International Physics Center (San Sebastian) 21 March 03
9.- Catalysis department Debye Institute Utrech (Holland) 14 October 03
10.- Colloids department, Van't Hoff Lab, Debye Institute Utrech (Holland) 16 October 03
11.- ICMAB-CSIC Institut de Ciencia de Materials de Barcelona (Bellaterra) 6 November 03
12.- Biochemistry Department U. Liverpool (UK) 1 April 04
13.- Jornades inagurales sobre nanociencia en la UB (Barcelona) 8 June 04
14.- Institut Catalá Investigacions Químiques ICIQ-(Tarragona). 1 July 04
15.- Any de la Física. Nanotecnologies. UAB (Bellaterra). 19 February 05
16.- Fundació “La Caixa”, La Física i les Fronteras del Coneixement: Nanotecnologia. (Tarragona). 7 Nov 2005
17.- Cirugía Molecular. Centro Física Aplicada. UNAM. Querétaro. (México). 6 January 2006.
18.- Plants Nanoparticle Internalization. Can NP get into the trophic Caín?. ETSE-UAB. (Barcelona) 7 March 2006
19.- Universitat Internacional de Catalunya. Hospital General. (Barcelona) 6 April 2006
20.- The life of a nanoparticle inside the cell, Institute Geomática, (Castelldefels), SPAIN, 15 Nov. 06
21.- Advances in the NP Lab. ICN I)nternational Advisory Board, Barcelona 29-30 Nov. 06

Map of research activities



Research map. Synthesis, characterization and applications of nanostructures prepared by bottom up-chemical approaches.

[the number in brackets correspond to the numbers of the publications list]

Synthesis. Nanoparticles. Synthesis by wet chemistry routes of colloidal dispersions of inorganic nanoparticles, mainly metals and oxides [17-22,24,27,30,38,39,46] .
Synthesis. Hybrides. Composites of mesoporous and zeolite oxide materials where a dispersion of metallic nanoparticles is hold. [23,26,28,29,32,33,36,37,42].
Synthesis. Self-Assembly. Controlling the mechanisms of self-assembly is key in organizing nano building blocks into functional devices.[20,34,38,40,50].
Analysis. Properties. Chemical. Study of the chemical stability and the catalitic properties of the prepared nanostructures [32,33].
Analysis. Properties. Physical. Study of the optical, electrical and magnetic properties of nanostructures [mainly magnetism: 1-7,10,12-16,18,19,34,41,42].
Analysis. Structure. XRD. Study of crystal phase, size, strain and preferential growth (texture) of nanostructures [5,8,22], and also UV-VIS and XPS spectroscopies.
Analysis. Structure. Microscopy. Intensive use of the microscopy and complementary analysis with electrons (TEM, SEM, EELS, AFM, MFM and Optical Microscopy) [8,9,11,32,34].
Applications. Applied Physics. Applications derived from the structural, electronic, magnetic and optical properties. Sub-micrometric dispersions for coatings, mechanical properties and surfaces modifications [1,3,14,28,37,47,49].
Applications. Biology. Solubilization of metallic nanoparticles in water. Persistence and reactivity of nanoparticles in the environment. Local and remote manipulation of molecular aggregation [25,39,43,44,45,48,51,52,53].