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Basque Foundation for Science



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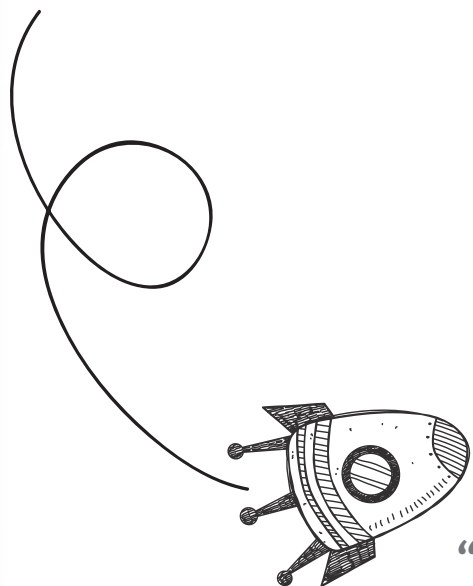
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EUSKO JAURLARITZA
GOBIERNO VASCO



“Everything seems impossible until it is done.”

Nelson Mandela





248

Projects with external financing

Research projects with external financing in which Ikerbasque researchers participate.

21

Young Researchers

Research Fellow programme was launched by Ikerbasque in 2012 with the aim of fostering a new generation of future scientific leaders. 21 people had joined Basque universities and research centers by the end of 2013.

130

Permanent Researchers

Ikerbasque has attracted 130 permanent researchers from 20 countries to the Basque Country, who are permanently assigned to universities and research centres.

670

Articles in indexed publications

5.38 articles published in ISI Database journals per Researcher and 6.22 publications per Researcher (including papers in ISI Database, chapters in books, and books).

€ 16.925.282

Return

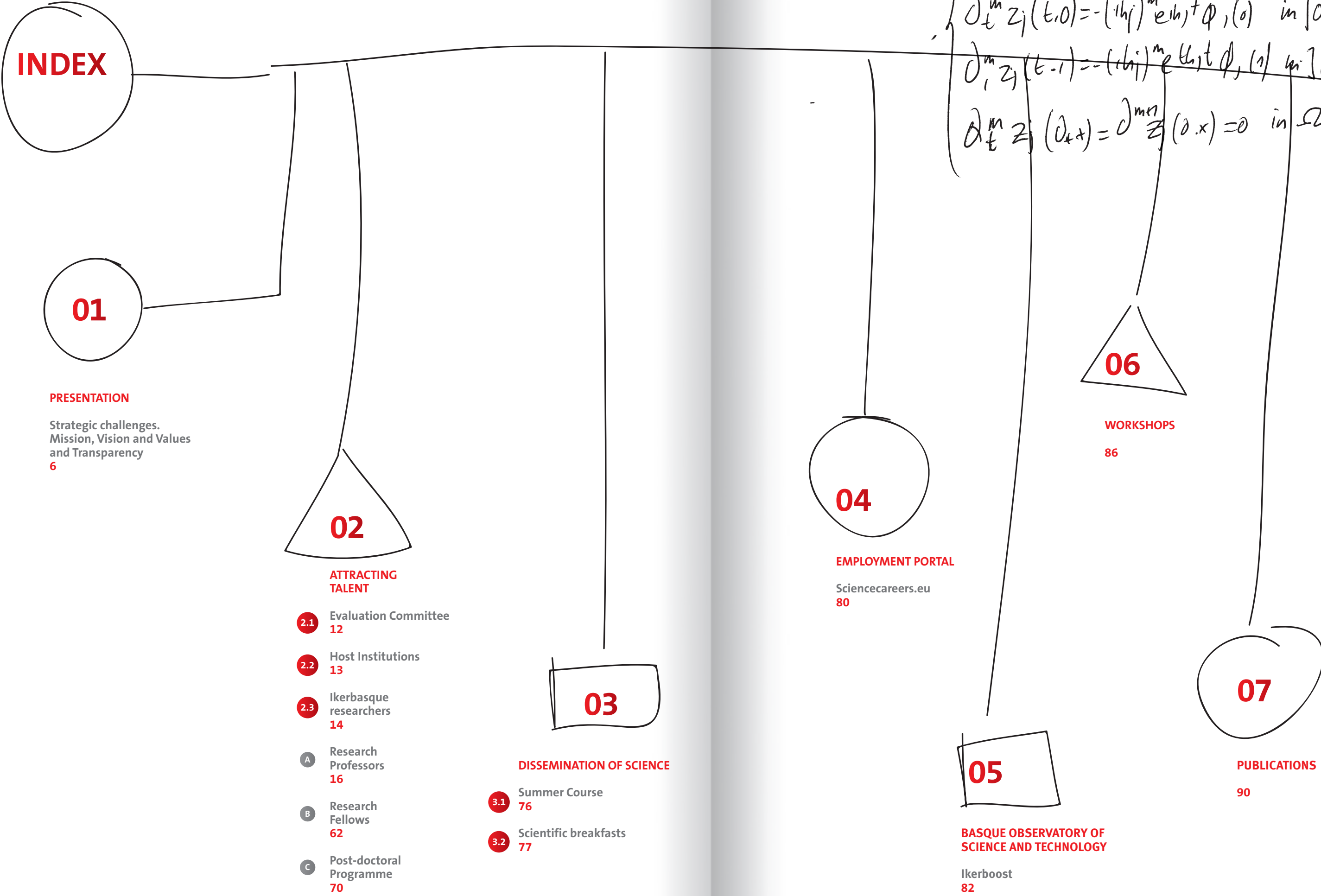
Total funds that Ikerbasque Research Professors have received.

WHAT IS IKERBASQUE?

Ikerbasque is the foundation that is in charge of fostering the production, promotion and dissemination of scientific knowledge in the Basque country.

ERC
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The ERC (European Research Council) is the first European organisation that promotes research projects based on scientific excellence. Nine Ikerbasque researchers have been awarded ERC grants to undertake major projects (three ERC Advanced Grants and six ERC Starting Grants).



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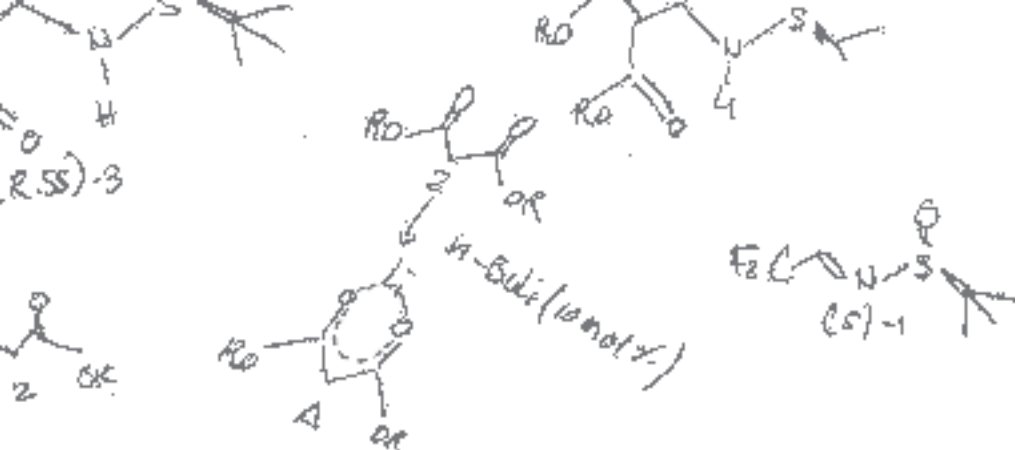
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THE BASQUE FOUNDATION FOR SCIENCE, IKERBASQUE

The results in 2013 show that the Foundation has become a magnet for researchers.

In 2007, the Basque Government set up Ikerbasque, the Basque Foundation for Science. The aim was to help the Basque Country become an international benchmark in the field of research. For this reason, Ikerbasque has banked on scientific talent as a central element of its strategy.

The results achieved in 2013 show a consolidated project: so far, Ikerbasque has hired 130 senior researchers, who have published 670 articles in indexed journals and have obtained more than 16 million euros for research projects, which almost doubles the investment made. These resources are used to foster research in Euskadi by hiring researchers

of all levels and investing in equipment and infrastructures. Ikerbasque's researchers have also received 9 ERC Grants, the most sought-after grants in Europe that pioneer ambitious frontier research projects. The ERC Grant obtained in 2013 was the first in Life Sciences obtained by the Basque Country.

An important milestone has been the incorporation of the first generation of Research Fellows, young researchers who have a promising scientific career and international experience; this call is expected to become a source of new talent to lead the future of scientific research in the Basque Country. In addition, the second promotion

has been selected, 25 people who will join in the coming months.

On the other hand, along with its allies, Ikerbasque has embarked on a process of strategic reflection that has culminated in a new Strategic Plan for the 2014-2017 period. This document will guide the actions of the organisation over the next four years and the seven challenges are established in it for Ikerbasque and for science in the Basque Country. The Basque Country has scope for improving its position quantitatively and qualitatively and in this way Ikerbasque will play a facilitating role, assisting the different organisations in attaining their own goals.

STRATEGIC CHALLENGES.

Challenge 1
The Basque Country reaches 7000 scientific publications in 2017
With similar annual growth to that maintained over the past few years, higher than the world and Spanish state average.

Challenge 2
Improve the productivity of the Basque science system
The increase in scientific production will be accompanied by a relative improvement in productivity, measured in publications per capita, improving both the absolute as well as the relative position of the Basque Country with respect to other regions.

Challenge 3
Improve the impact of the scientific publications of the Basque Country
In addition to a quantitative leap, the production of relevant science at an international level, which is useful for the scientific community and has a greater impact, is especially relevant. The Basque Country must progress to the level of the regions with greatest impact.

Challenge 4
Ikerbasque contracts 140 new researchers
Throughout the 2014-2017 period, 100 new Research Fellows will be hired, as well as 40 Research Professors, with which the number of researchers that have been taken on will reach 300.

MISSION

Ikerbasque is the organization promoted by the Basque Government to boost science in the Basque Country through programmes for attracting and taking on researchers and the revitalising of research, in cooperation with research centres and universities and committed to excellence.

VALUES

- Efficiency
- Rigour
- Cooperation
- Commitment

Challenge 5
Ikerbasque researchers publish more than 1000 articles in 2017 and reach an H index greater than 65
The number of scientific publications involving the Ikerbasque researchers will surpass the barrier of 1000 unique documents in 2017. Taking into account the size of our science system, many of them will work collaboratively and will conduct joint research. The impact of these publications in the international scientific community, measured by the H index, doubles up to 65.

Challenge 6
Ikerbasque obtains a return of 90 million euros in the 2014-2017 period
For every euro that the Basque Government invests in Ikerbasque, close to double the funds return for investment in the science system, thanks to the funds attracted by the researchers themselves for of projects (€175.000 per year on average per Research Professor in the year 2017) and to the financial aid obtained by the Ikerbasque management team for the co-financing of programmes. In the 2014-2017 period, the total returns will be of 90 million euros.

Challenge 7
The BERCs publish 1000 articles, 15% of the total of the Basque Country
The maturity of the institutions that have emerged in recent years, particularly the BERCs, will make these institutions have a greater role in the scientific production, consolidating a dynamic ecosystem of scientific research.

VISION

In 2017 Ikerbasque aspires to be:

- the main revitalising entity of the science system in the Basque Country,
- thanks to its proven ability to attract and consolidate scientific talent
- and its participation in the improvement of efficiency of the Basque science system,
- recognised by society, the Administration and its Board for its contribution to the improvement of the science of the Basque Country, its management model, transparency and its sustainability;
- and where the people who compose it can fully develop.

TRANSPARENCY

Ikerbasque makes a strong pledge to transparency, in the belief that integrity, transparency and responsibility are the pillars of organisational excellence. Transparency refers to the access people have to information about the organisation. Our accounts are audited annually and can be viewed on our website: www.ikerbasque.net

Since Ikerbasque was set up in 2007, 290 people have been attracted through different initiatives. The organisation's management team is comprised of 5 people, which represents 2% of the total workforce.

Ikerbasque continues to be a model of management excellence, being awarded the EFQM's Silver Q Award in 2011. It has also received the European Commission's "HR Excellence in Research" seal, which gives recognition to leading institutions in Europe in terms of selecting, hiring and consolidating research talent.

Ikerbasque budget for 2013 is broken down as follows:

Total budget
€ 13,611,001

Basque Government
€ 12,191,944

European Union
€ 1,245,882

Others
€ 173,175





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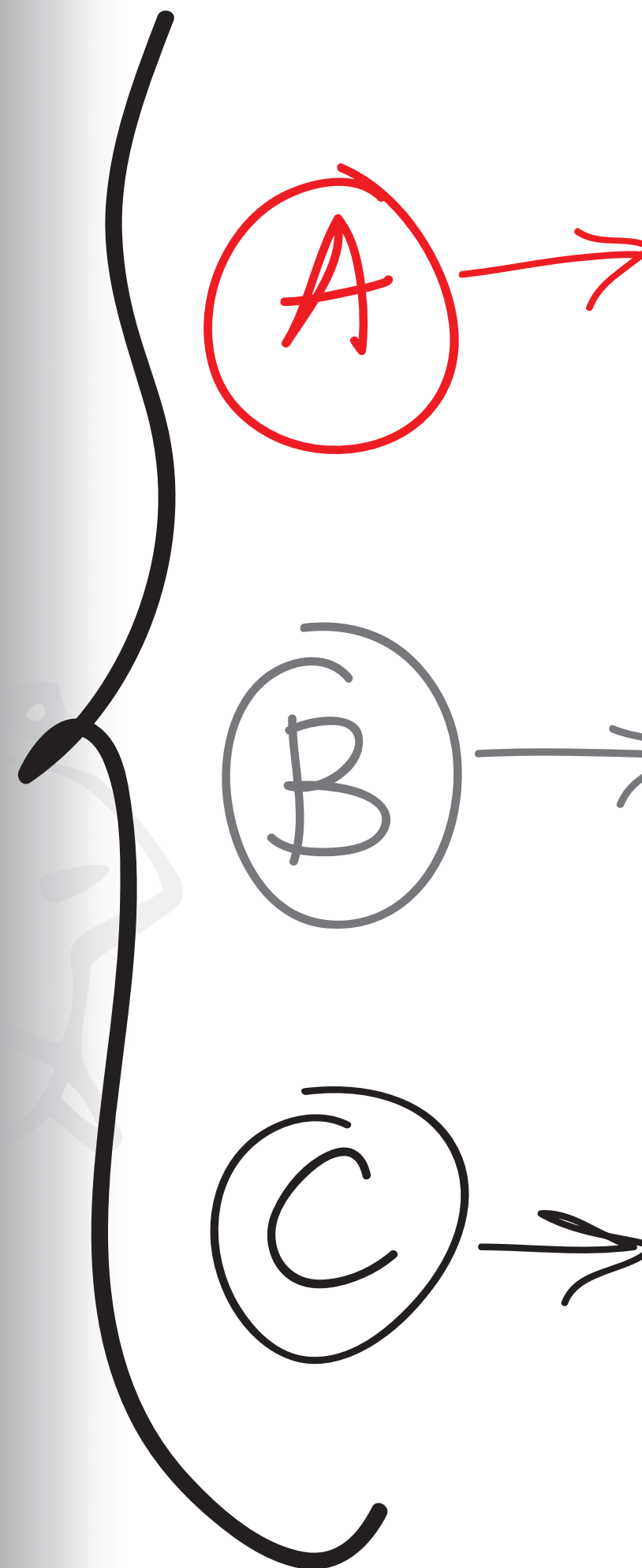
Prof. Manel Esteller
Director of the Cancer Epigenetics and
Biology Program of the Bellvitge Institute
for Biomedical Research (IDIBELL),
Leader of the Cancer Epigenetics Group,
Professor of Genetics in the School of
Medicine of the University of Barcelona.

- 1 Scientific merit and research career.
- 2 Relevance of the research field and of the publications made.
- 3 Concordance with the capabilities of the Basque Science System.

The diagram illustrates the Ikerbasque Basque Foundation for Science as a central hub connecting to a network of 20 other research centers and universities. The nodes are arranged in a circle and connected by dotted lines. The nodes include:

- (bcam) basque center for applied mathematics
- b-i-o eusko fundazioa
- CIC bioGUNE
- bdbi BASQUE CENTER ON COGNITION, BRAIN AND LANGUAGE
- Euskal Herriko Unibertsitatea
- ehugorri Achucarro
- CIC microGUNE
- biodonostia
- POLYMAT
- GLOBERNANCE
- Universidad de Deusto
- neiker
- ik4 research alliance
- ceit
- dipc
- Doñostia International Physics Center
- bc3 BASQUE CENTRE FOR CLIMATE CHANGE
- MONDRAGON UNIBERTSITATEA
- CIC nanoGUNE

IKERBASQUE RESEARCHERS



Research Professors

Senior researchers with extensive research experience and leadership skills. They are assigned permanently to Basque universities and research centres.

Research Fellows

Young researchers, who have from 3 to 10 years of postdoctoral experience, with outstanding CVs. International experience and promising scientific career. They are assigned to Basque universities and research centres for a five-year period.

Post-Doctoral Programme

Basque Government program to fund post-doctoral training for researchers in the Basque Country. It includes a training period of two years abroad and a third year in the Basque Country.



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MAIN DATA Research Professors

€ 16,925,282

Total funds that Ikerbasque Research Professors received in 2013.

670

Number of articles in indexed publications.

130

No. of researchers with a permanent contract.

ARTICLES AND PUBLICATIONS:

6.22

Articles, reports, books and chapters in books.

5.38

Articles in ISI Database magazines per researcher.

PAPERS AND COMMUNICATIONS:

6.99

No. of papers presented at international conferences per researcher.

FUNDS:

€ 102,832

Funds obtained per Ikerbasque Researcher as director or member of the research group.

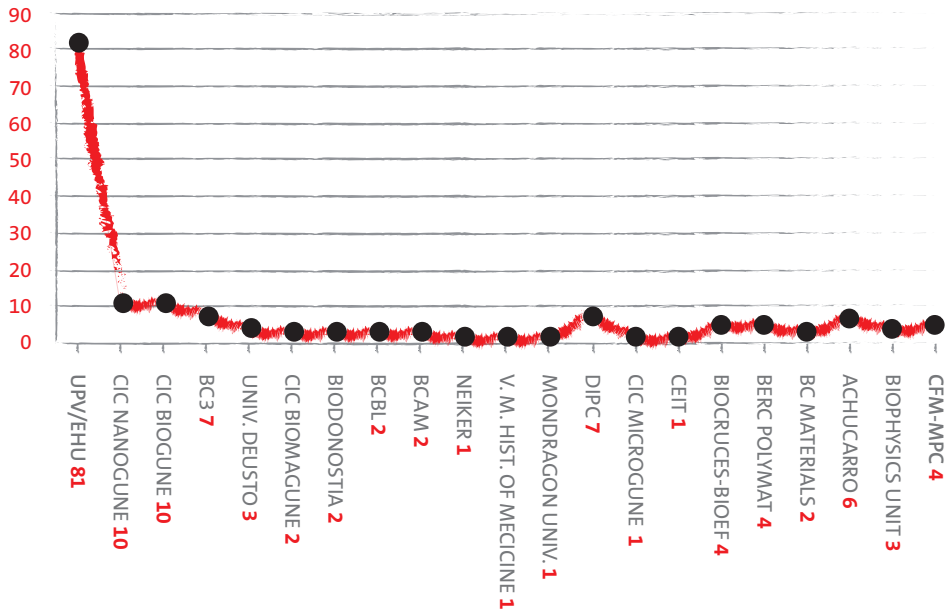
PROJECTS:

248

Projects with external financing in which Ikerbasque researchers participate.

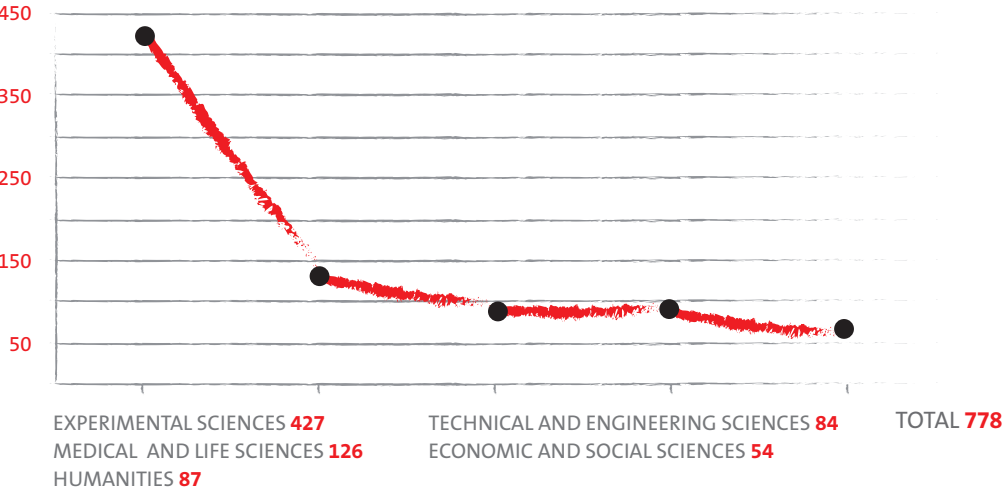
Due to some researchers having started work in Ikerbasque over the course of 2013, they have not worked for a full year. Taking this variable into account the ratios are calculated for 125 researchers.

Host Institutions of the Ikerbasque Research Professors:

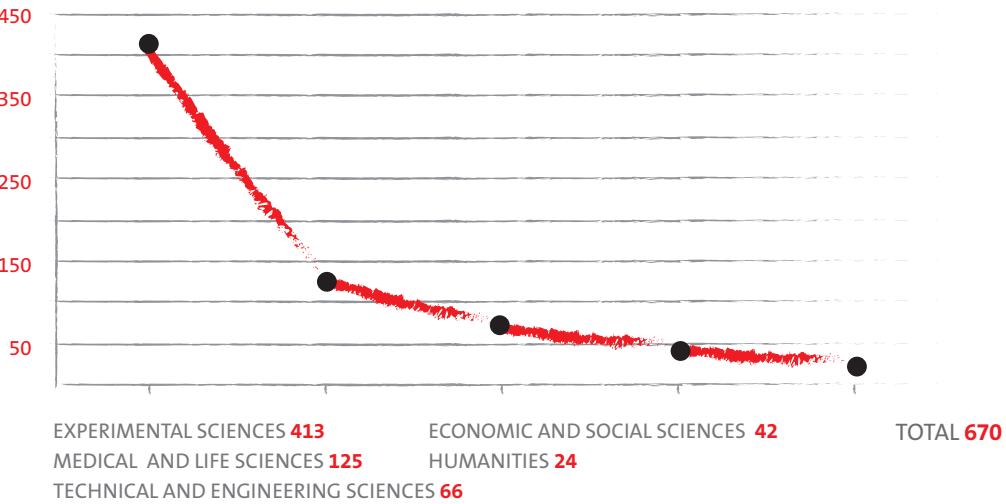


No. of Publications* by research area:

* Including published documents, books and chapters.



No. of Publications indexed in the ISI Database:



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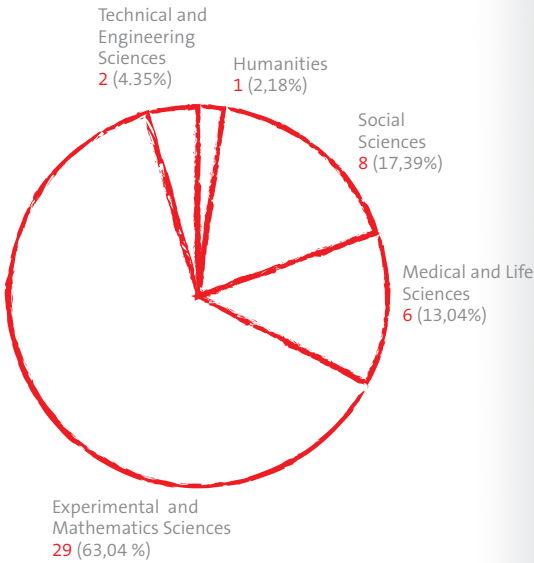
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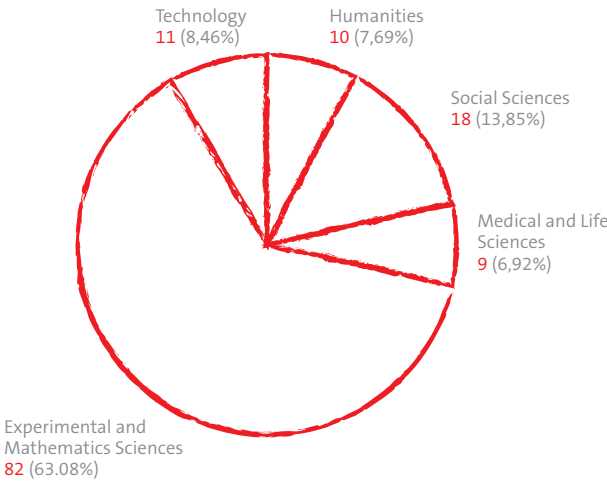


PROFILE Research Professors

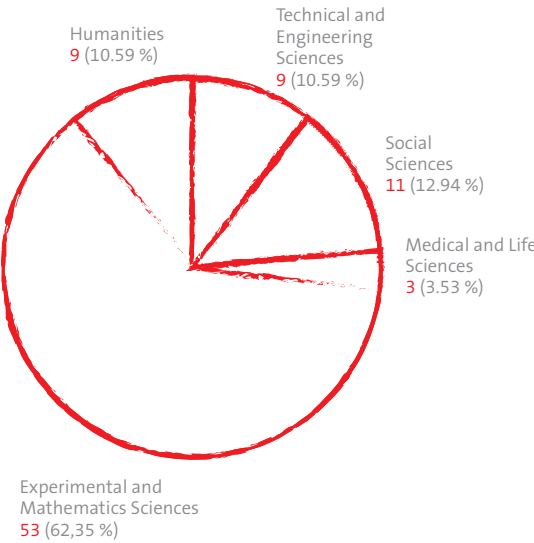
Researchers in research centres by field
(Total 46)



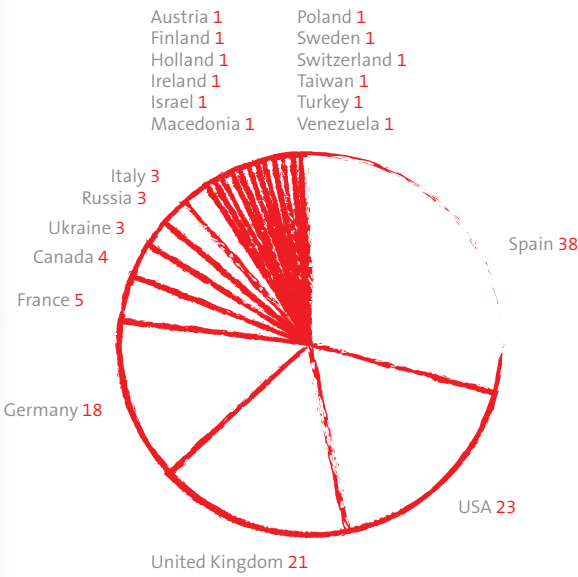
Researchers by knowledge field
(Total 130)



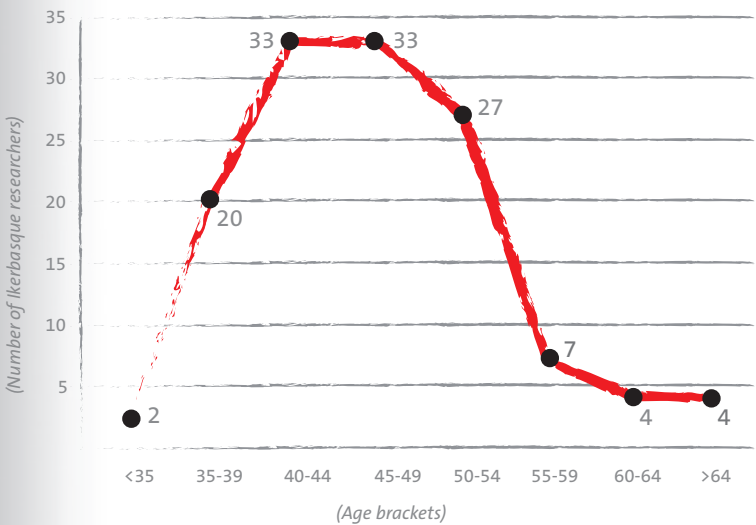
Researchers in universities by field
(Total 85)



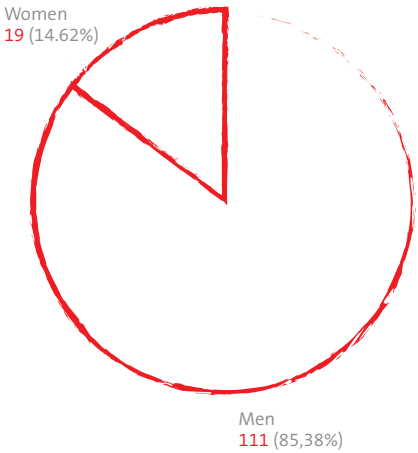
Country of origin of the researchers
at the time they were hired
(Total 130)



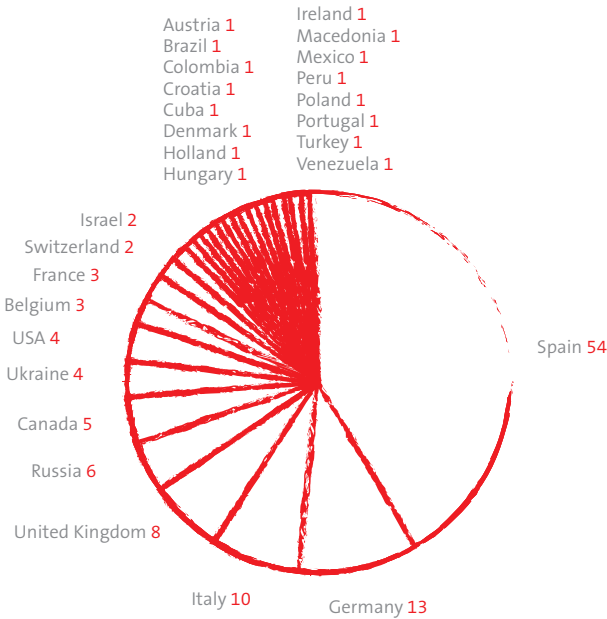
Distribution of researchers by age
(Total 130)



Researchers Gender
(Total 130)



Nationality of the researchers
(Total 130)



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A Research Professors



Dr. Aitor Anduaga

Doctor in Physics in 2001 from the University of the Basque Country.

Guest Professor at the universities of Oxford, Sydney, Toronto and Montreal, the Max Planck History of Science Institute (Berlin) and the Smithsonian (Washington, DC).

Research field: History of Physics and Geophysics, Science in non-democratic regimes; the interaction between science, technology and industry.

He works at the Basque Museum of the History of Medicine and Science, of the UPV/EHU.



Dr. Juan Anguita

Doctor in Animal Health in 1993 from University of León.

He has previous research experience at Yale University, UNC Charlotte and Massachusetts Amherst University (USA).

Research field: proinflammatory signals in response to infectious agents. Macrophage function. Antimicrobials and Immunomodulators.

He works at CIC bioGUNE.



Dr. Juan Carlos Arango

Doctor in Psychology in 2002 from the Autonomous University of Madrid.

He has previous research experience at Cooperative University of Colombia, San Buenaventura University, Antioquía University (both in Colombia), Complutense University of Madrid, University of Medicine and Dentistry of New Jersey (USA) and Virginia Commonwealth University (USA).

Research field: traumatic brain injury, spinal cord injury, physiotherapy and family affairs.

He works for the Neuropsychology of Medical Conditions Group at Deusto University.



Dr. Emilio Artacho

Doctor in Condensed Matter Physics in 1990 from the Autonomous University of Madrid.

He has previous research experience at University of California, Berkeley (USA), Max Planck Institute (Germany), Autonomous University of Madrid (Spain) and Cambridge University (UK).

Research field: Condensed matter physics; theory and simulation of solids, liquids and nanostructures.

He comes from the Cavendish Physics-Laboratory Department of the University of Cambridge.

He works at CIC nanoGUNE.



Dr. Gonzalo Bacigalupe

Doctor in Education (Psychological Counsellor) in 1995 from the University of Massachusetts Amherst; Masters degree in Public Health Care in 2007 from the University of Harvard.

He has previous research experience at Los Lagos University (Chile), Massachusetts Boston University (USA), Massachusetts Amherst University (USA) and the Department of Family Medicine and Community Health at UMASS Medical School Worcester (USA).

Research field: Family health, immigrant and transnational families, psychosocial impact of social technologies (ISTs), gender violence, family psychotherapy.

He works at the Faculty of Psychology and Educational Sciences of the University of Deusto.



Dr. Igor Bandos

Doctor in Physics and Mathematics in 1986 from the University of Donetsk.

He has previous research experience at Kharkov State University and Institute for Theoretical Physics, NSC Kharkov Institute of Physics and Technology (Ukraine), Vienna University of Technology (Austria) and Valencia University (Spain).

Research field: Theoretical physics of high energies, string theory/M theory, supergravity, supersymmetry.

He works at the Theoretical Physics and History of Science department of the Faculty of Science and Technology of UPV/EHU in Leioa.



Dr. Lourdes Basabe

Doctor in Zoology in 2006 from the University of Twente.

She has previous research experience at Autonomous University of Madrid (Spain), Twente University (the Netherlands) and Biomedical Diagnostics Institute, Dublin City University (Ireland).

Research field: Point-of-care diagnostic platforms: Integration of biosensors in microfluidic platforms for disposable point-of-care diagnostic tests.

She works at CIC microGUNE.



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Noteworthy project

Behobia-San Sebastián: Is it possible to reach 30,000 participants?

The Behobia-San Sebastian is a well-known popular 20 km race (one km less than half a marathon) organised every year on the second Sunday of November by the CD Fortuna (Fortuna Sports Club). The start line is in Behobia, and the finish line is in Donostia-San Sebastián. The first edition took place in 1919 and only 20 runners took part. Since then, 48 Editions have been held and the last one had 21,000 participant runners, many of them coming from different corners of the Spanish state and Europe.



Dr. Urtzi Ayesta

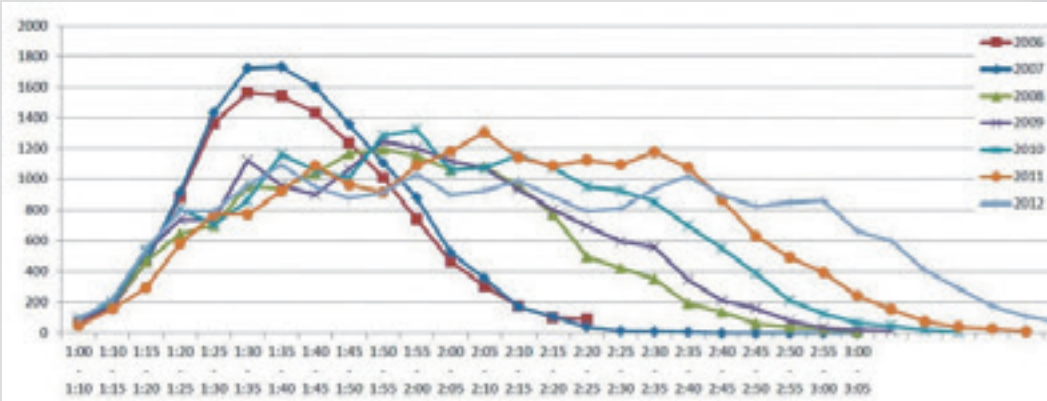
Doctor in Computational Science in 2004 from the University of Nice Sophia-Antipolis.

He has previous research experience in CWI (Holland), INRIA, France Telecom and CNRS (France).

Research field: Programming theory, queuing theory, stochastic processes, gaming theory and their applications to the performance of the evaluation, design and scoping of the telecommunications and distributed systems networks.

He works at the Computer Science and Artificial Intelligence department of the UPV/EHU.

The challenge for organisers is to reach 30,000 runners, thus making it one of the most important half marathons at a European level. In any event, increasing the number of participants entails many problems from a logistical point of view: the organisation of the start, the management of the refreshment points, etc. Moreover, the experience of the participants could be worsened due to the feeling of overcrowding. To deal with this challenge in a suitable manner, the organisation and the researchers of UPV/EHU Urtzi Ayesta (Ikerbasque Researcher) and Martin Erauskin are working together. Their research group has developed an innovative mathematical model for modelling the flow of runners. In the words of the researchers, "thanks to this model, we have been able to design and optimise some specific aspects of the organisation. For example, as anticipated by our mathematical model, organising the runners by groups at the starting line and setting



In fact, the researchers believe that it will be possible to increase the number of participants thanks to this model: "looking at the future and having seen that our model has very correctly predicted the flow dynamics of the runners, the organisers are very hopeful, as they consider our research to be of great help

the departure times of the different groups in an appropriate manner, we have managed to reduce crowding at the finish line in an incredible way. In previous editions of the race, the rate of arrival of the runners at the finish line fluctuated wildly. At the times of greatest rate of arrivals, large crowds came together at the finish line, making it extremely difficult to manage the refreshment points. However, in the last edition, thanks to our model, the rate of arrival of runners was kept at a steady value throughout the competition, reducing crowds and improving the experience of the participants. In the chart you can see the evolution of the rate of arrival of runners over the past few years and you can see that in the last edition the arrival rate remains constant over a long period of time."

for controlling the growth process of the race. On the other hand, from our point of view, that of researchers, this has been a very successful collaboration, as it put theory into practice, achieving most positive results."



Dr. Alexander Bittner

Doctor rer. nat in Chemistry in 1996 from the University of Berlin, Germany.

He has previous research experience in Lure (France) and ETH (Lausanne, Switzerland), Sciences at nanoscale at MPI Solid State Research in Stuttgart.

Research field: electrochemistry, solids/liquids interfaces, plant viruses, electrospinning.

He works at the CIC nanoGUNE as Self-Assembly Group Leader.



Dr. José Juan Blanco

Doctor in Physics in 2001 from the University of Tufts (USA).

He has previous research experience in the United Kingdom and USA (University of Tufts).

Research field: cosmology of the primitive universe.

He works at the Theoretical Physics department of the UPV/EHU.



Dr. Francisco Borrego

Doctor in Medicine in 1994 from the University of Cordoba.

Research experience in the USA: National Institute of Allergies and Infectious Diseases (AID-NIHD) and Food and Drug Administration (FDA).

Research field: Immunology

He carries out his research in BioCruces Health Research Institute.



Dr. Luz Boyero

Doctor in Biology in 2002 from the Autonomous University of Madrid.

Research experience at the James Cook University in Australia, at the Tropical Smithsonian Institute (Panama-USA) and at the CSIC.

Research field: Biodiversity, functional ecosystems, global change, freshwater ecology.

She works at the Biology and Ecology department of the UPV/EHU.



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Dr. Thomas Broadhurst

Doctor in Physics from the University of Durham, United Kingdom.

He has previous research experience at centres in the UK, USA, Germany, Israel, Japan and Taiwan.

Research field: Observational cosmology, dark matter, the formation of galaxies. Experience with telescopes and satellites.

Dr. Christian Blum

Doctor in Applied Sciences in 2004 from the Free University of Brussels.

He has previous research experience at IRIDIA, Université Libre de Bruxelles (Belgium), Universitat Politècnica de Catalunya.

Research field: swarm intelligence techniques for optimization and management tasks in static and decentralised environments, hybridisation of metaheuristics with complete combinatorial optimisation techniques.

He works at the Computer Science and Artificial Intelligence department of the UPV/EHU.



Dr. Jean-Bernard Bru

Doctor in Mathematical Physics in 1999 at the Theoretical Physics Center (C.P.T.), Marseilles, France.

He has previous research experience at the Centre for Theoretical Physics (CPT) in Marseilles (France), University of California (U.S.), School of Theoretical Physics - D.I.A.S. (Ireland), Dublin (Ireland), Johannes Gutenberg-University Mainz (Germany), University of Vienna (Austria).

Research field: mathematical studies (analysis, probability, algebra) of the quantum problem of multiple bodies relating to condensed matter physics.

He works at the Mathematics Department of the Faculty of Science and Technology of the UPV/EHU.



Dr. Félix Casanova

Doctor in Physics in 2003 from the University of Barcelona.

He has previous research experience at the University of San Diego, California, USA.

Research field: spin currents in complex systems (metals, superconductors, organic semiconductors) by nanomanufacturing and features of "spintronic" devices.

He works at CIC nanoGUNE.



Noteworthy project



Dr. Francisco Blanco

Doctor in Chemistry in 1992 from the Complutense University of Madrid.

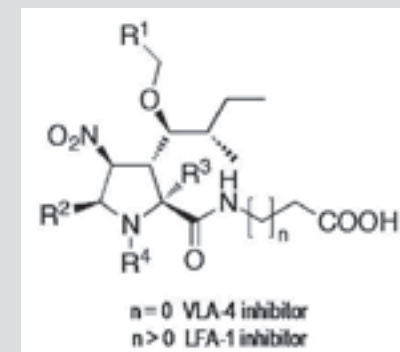
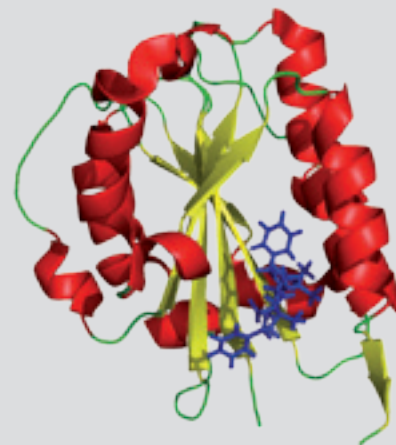
He has previous research experience at the Institute for the Structure of Matter, CSIC (Spain), European Molecular Biology Laboratory, Heidelberg (Germany), National Institutes of Health, NIDDK (USA), National Centre for Oncology Research (CNIO).

Research field: Biosciences, the structure of proteins.

He works at CIC bioGUNE as RMN Group Leader.

Molecules that could stop the metastasis of colon cancer

A Basque research consortium managed to slow down the development of colon cancer and its metastasis in the liver in an experimental model with mice. This advance, which could open a new path for the future treatment of such pathologies, has been achieved by creating molecules that interfere with the adhesion of tumour cells to the other cells of the body. Thus, the molecules slow down both tumour growth and the spread of tumour cells and their proliferation in other organs. This research was led by the Ikerbasque researcher Francisco Blanco of CIC bioGUNE and Fernando Cossio, the Science Director of Ikerbasque.



The study was published in the prestigious American 'Journal of Medicinal Chemistry' and is based on a previous work of researchers from the University of the Basque Country which had described a series of molecules that reduced the metastasis of the melanoma (a severe variety of skin cancer) in mice. This work opened the possibility of generating new molecules with activity in other types of cancer following a similar strategy, something that has been achieved in this subsequent research, applying it to colon cancer and its metastasis in the liver.

In addition to its relevance for the control of cancer and metastasis, this work shows that in the Basque Country there are teams of researchers at academic centres and companies with the experience and collaboration capacity needed to tackle multidisciplinary projects of biomedical relevance, combining synthetic and computational chemistry with the structural analysis of the action mechanism and biological validation of the molecules generated", according to Francisco Blanco, an Ikerbasque researcher at CIC bioGUNE.

The impact of cancer and metastasis

Cancer is the second leading cause of human mortality and its incidence increases with age. Thanks to the progress in the diagnosis and control of detected tumours, we have managed to increase the survival rate and in this sense it is considered that still more progress can be made in these two aspects of the illness. At present, 90% of the deaths from cancer occur due to the reappearance of the original tumour elsewhere in the body, by a process known as metastasis. This process consists in a cancer cell from the original tumour moving through the patient's body and nesting in another organ, generating a new tumour. Colon cancer is not one of the ones with the highest mortality rate but it usually metastasises in the liver, which is mortal. In fact, this is the organ in which the metastasis from tumours situated in other parts of the body most frequently appears. This is due to the fact that the liver acts as a filter for the blood and lymph and therefore the cancer cells circulating with these fluids may be trapped in it. The lethal danger arising from the migration of cancer cells through the body is what drives researchers to search for therapies to stop the metastasis.



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Dr. Hubert Chen

Doctor in Computer Science in 2004 from the University of Cornell (USA).

He has previous research experience in the United States (Cornell University, Ithaca) and Spain (Universitat Pompeu Fabra, Barcelona). Visiting Professor in Germany, England and France.

Research field: Theoretical computer science and related mathematics.

He works at the Department of Computer Language and Systems at UPV/EHU.



Dr. Volodymyr Chernenko

Doctor in Physics and Chemistry in 1980 from the State University of Moscow.

He has previous research experience at Moscow State University (Russia), Institute of Metal Physics, NASU (Ukraine), Forschungszentrum Karlsruhe, Karlsruhe (Germany), and CNR IENI (Italy). Visiting professor at institutions of the United States, Japan, Spain, Italy, Switzerland, France and Australia.

Research fields: ferromagnetic materials with shape memory.

He works at the Electricity and Electronics department of the Faculty of Science and Technology of the UPV/EHU.



Dr. Andrey Chuvilin

Doctor in Physics and Mathematics in 1998 from the Organic Chemistry Institute SB RAS, Novosibirsk, Russia.

Institute of Catalysis, Novosibirsk (Russia), University of Jena (Germany), TU Ilmenau (Germany) and University of Ulm (Germany).

Research field: Low voltage high resolution TEM of nanocarbon materials, electron diffraction in convergent beams, image simulation and processing.

He works at the CIC nanoGUNE in the Electron Microscopy Laboratory.



Dr. Martin Cooke

Doctor in Information Technology in 1991 from the University of Sheffield.

British Computer Society Prize (Cambridge University Press).

He has previous research experience in Great Britain at the National Physics Laboratory and at the University of Sheffield.

Research field: computer hearing, robust automatic speech recognition.

He works at the LASLAB laboratory (Language and Speech Lab) at the Faculty of Arts at the UPV/EHU in Vitoria-Gasteiz.



Dr. Daniel Conversi

Doctor in Sociology in 1994 from the London School of Economics.

He has research experience at the London School of Economics (UK), Cornell University (USA), Syracuse University (USA), Central European University (Hungary), John Cabot University (Italy) and University of Lincoln (UK).

Research field: Political and social history.

He works at the PROSOPARLAM of the UPV/EHU in Leioa.



Dr. Susana Cristobal

Doctor in Biochemistry in 1997 from the Faculty of Medicine of the Basque Country.

She has research experience at Stockholm University, Karolinska, Uppsala University and Linköping University (Sweden).

Research field: Proteomics: tools to calculate environmental and health matters.

She works at the Physiology department of the Faculty of Medicine of the UPV/EHU.



Dr. Eros Corazza

Doctor in the Arts in 1992 from the University of Geneva.

He has previous research experience at universities and centres in Switzerland, France, United States, United Kingdom, Spain and Canada.

Research field: Philosophy of language and the mind. Linguistics. Cognitive sciences

He works at the ILCLI (Institute for Logic, Cognition, Language and Information) of the UPV/EHU.



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Dr. Roberto D'Agosta

Doctor in Physics in 2003 from the University of Rome "Tre".

He has research experience at University of Missouri – Columbia (USA), Istituto Nazionale per la Fisica della Materiala (Italy), University of California (USA) and Imperial College London (UK).

Research field: the transport of electrons in nanoscale systems, multiple bodies system theory and the open quantum system. Cold atoms physics

He works at the ETSF and the Materials Physics department of the Faculty of Chemistry of the UPV/EHU.



Dr. Ezequiel DiPaolo

Doctor in Computer Science in 1999 from the University of Sussex, United Kingdom.

He has research experience at centres including the Centre for Computational Neuroscience and Robotics (CCNR), Centre for Research in Cognitive Science (COGS), Sussex University (UK), Institute for Autonomous Intelligent Systems and German National Research for Information Technology GMD (Germany).

Research field: Personal and social cognition, philosophy of the mind, evolutionist robotics, computational neuroscience.

He works at the Department of Logic and Philosophy of Science of the EPV/EHU.



Dr. Fadi Dornaika

Doctor in Computer Science in 1995 from the National Research Institute of Information Technology and Automation (INRIA) in France.

He has previous research experience at centres in France, Spain, Sweden, Germany, China and Canada.

Research field: computer vision, image processing, models recognition, learning by machines.

He works at the Computer Science and Artificial Intelligence department of the UPV/EHU.



Noteworthy project

Dr. Darrell Conklin

Doctor in Computer Science in 1995 from the University of Queen.

He has previous research experience at centres in Spain, the United Kingdom, the USA, Norway and Canada.

Research field: bio information technology, musical information technology

He works at the department of Information Technology and Artificial Intelligence of the UPV/EHU in Donostia-San Sebastián.

New SNPs discovered in the anchovy

The European anchovy is a small fish of great economic importance for the Basque Country, so the management of this precious resource is important. The anchovy genome is being sequenced by the Genomics Resources group of the UPV/EHU and the Ikerbasque researcher, Darrell Conklin, which will be essential for the understanding of the evolution of the European anchovy, as well as for the assignment of the individuals to the populations on the basis of the genetic differences between populations.



A standard genetic marker is the SNP (single nucleotide polymorphism). There are points where, due to the genetic drift or fixing, more than one allele was found in a species. One SNP allele that is common in a population may be rare in another, therefore, combinations of SNPs can be used to create signatures for specific populations and can be used as a tool to find out the origin of individual anchovies.

The discovery of SNPs is a complex process that has recently been addressed by the technologies of next-generation sequencing (NGS) and biocomputing, where billions of short DNA sequences of the transcriptome (cDNA) or the genome (gDNA) of the individuals can be computationally assembled and aligned in high coverage areas, in order to determine the variants. This is a difficult process that can be easily be done wrong by inaccurate assembly and DNA sequencing errors.

Therefore, all the SNPs identified computationally must be validated experimentally. This process, called genotyping, determines for a large number of individuals both alleles contained in each genotyped SNP.

The discovery of SNPs directly from transcriptome sequences has two clear advantages: direct

variations that they identify in the transcribed genes that are usually the main focus of research of the genetics of populations and the fact that the assembly of the complete genome is avoided, which is a very computationally complex process.

However, a complication in the SNP discovery of transcriptome sequences is that genotype primers must avoid the intron-exon barrier (IEB) areas, which are invisible in the cDNA sequences. Therefore, the research group comprised of scientists from the UPV/EHU and Ikerbasque has designed and included in the SNP detection method a new algorithm to predict the IEB places, based on the alignment of a large number of gDNA to assemblies contracted based on cDNA sequences. The sequence and biocomputing methods of the UPV/EHU and Ikerbasque researchers were applied to discover thousands of new SNPs in the anchovy and 530 were selected for validation (to ascertain which were really polymorphic) with arrays of genotypes. In a sample of 180 specimens from six populations (including those of the Bay of Biscay, the Mediterranean and the Atlantic), their methods reached the highest index of SNP validation (441 validated SNPs, a rate the 83.2%), never before achieved for a fish species. The discoveries are a genetic resource that is important and unique to the Basque Country.



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Noteworthy project

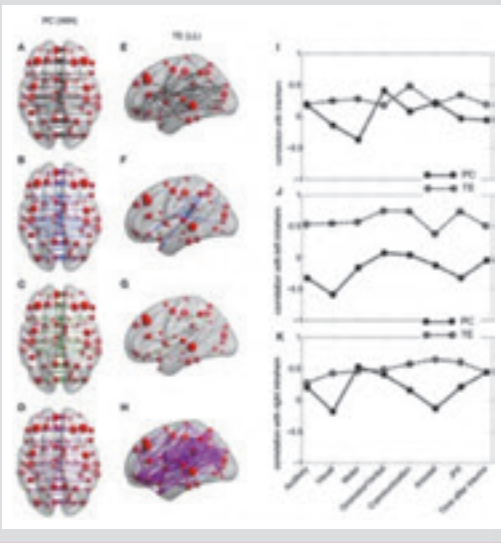
Using neuroimaging techniques to quantify the brain damage from consciousness disorders

A research effort in which the neuroimaging computational group of BioCruces participated - led by the Ikerbasque researcher Jesús M. Cortés - has found, through the use of functional magnetic resonance imaging, two brain markers that allow for quantifying the anomalies resulting from consciousness disorders (Deficit of Consciousness, DOC) in patients with a lesion from a traumatic brain injury, either in a coma, vegetative or minimum consciousness state.

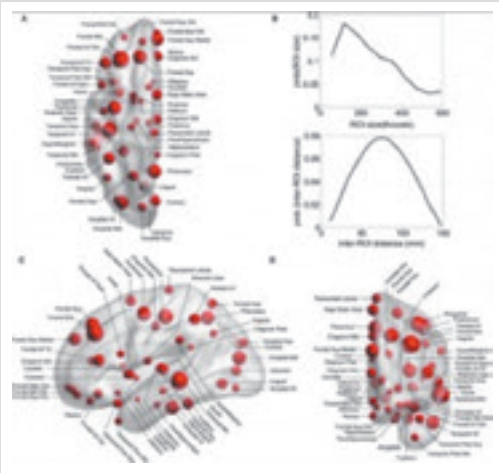
As highlighted by Dr. Jesús Cortés, "for us it was crucial to find objective markers that could measure the abnormalities in the brain function of patients with consciousness disorders. The reason is none other than that of achieving a better diagnosis, improving the prognosis and to more accurately predict the situation of these patients coming out of the coma." Furthermore, the telecommunications engineer, Ibai Díez, who shared contribution as first author of the study, pointed out that "for studying the functional connectivity of the brain networks we have used two different markers. On one hand, the partial correlation to objectify the connectivity between the two brain hemispheres and on the other, the entropic transfer to determine the activity within each one of the hemispheres."

The phenomenon of transient brain compensation after the coma

The use of this neuroimaging technique with these two new markers, has allowed the research group measure functional connectivity of the brain of patients in a coma, just at the time of awakening from it. "Although we have only had a limited patient sample, we have been able to ascertain that people in coma from a brain injury disorder, at the time of awakening, experience a considerable increase of information that is transferred inside their brain", Dr. Cortes pointed out.



So much so that "whereas a healthy subject may can have an average information transfer at a given time of about 344 bits, a person who wakes from a coma, at the time reaches up to 444 bits, 29% more." The expert mentioned that "these results suggest the existence of a transitional state of the brain on waking up from the coma, which could be interpreted as a cognitive compensation phenomenon, although we must wait for further research in this regard to confirm this hypothesis."



As has been demonstrated by the research, "no significant differences were found in both biomarkers - the partial correlation and entropic transfer - among the patients with consciousness disorders and the healthy subjects." Jesús M. Cortés explained that, "all this allows us to suggest the finding of two new biomarkers by functional magnetic resonance for these cases. This can be a great help to design new strategies for neuropsychological treatment and rehabilitation of patients with consciousness disorders."



Dr. Jesús Cortés

Doctor in Physics in 2005 from the University of Granada.

He has research experience at Radboud University Nijmegen (Holland), The Salk Institute (USA), University of Edinburgh (UK) and University of Granada (Spain).

Application of statistical methods and Information Theory to neuroimaging data.

He works at the Biocruces Health Research Institute (Bioef).



Dr. Javier Echeverría

Doctor in Philosophy in 1975 from the Complutense University of Madrid and Doctor in Science and Humanities from the University of Paris (Sorbonne).

Euskadi Research Prize 1997.

He has research experience at centres in the USA, France, Germany, Belgium and Spain, where he was Director of the Institute of Philosophy Spanish National Research Council (CSIC).

Research field: The Information and Knowledge Society.

He works at the department of Sociology II of the Faculty of Social Sciences and Communications of the UPV/EHU.



Dr. Juan M. Encinas

Doctor in Neuroscience from the Complutense University of Madrid.

He has research experience at the Institute of Neurological Recovery - Baylor College of Medicine/Texas Children's Hospital (USA) and Ramón y Cajal Institute of Neurobiology, CSIC (Spain).

Research field: Study of the intrinsic properties of neural stem cells and neurogenesis in the adult hippocampus under normal conditions, of ageing and of neurological disorders such as epilepsy.

He works at the Neuroscience department of the UPV/EHU.



Dr. Inma Estevez

Doctor in Zoology in 1994 from the University of Cordoba.

She has previous research experience at the University of Maryland (United States), Institute National de la Recherche Agronomique INRA (France), Swedish Institute, Agricultural University (Sweden) and the University of Cordoba (Spain).

Research field: improvement of poultry production.

She works at the Neiker-Tecnalia research centre.



Dr. Juan Falcón-Pérez

Doctor in Biological Sciences in 1999 from the Autonomous University of Madrid.

He has previous research experience at the University of California (USA) and Autonomous University of Madrid (Spain).

Research field: Functional and molecular study of microvesicles and thorough metabolic analysis of body fluids.

He conducts his research at CIC bioGUNE.



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Dr. Sergio Faria

Doctor in Mechanics from the Technological University of Darmstadt, Germany.

He has research experience at the Geosciences GZG, University of Göttingen (Germany), Max Planck Institute for Mathematics in the Sciences MPI-MIS (Germany), Darmstadt University of Technology TUD (Germany) and Federal University of Paraná UFPR (Brazil).

Research field: Environmental physics, glaciology, geomorphology, thermodynamics, soft matter, continuous diversity, biodiversity, emerging and multiscale modelling.

He works at the BC3 (Basque Centre for Climate Change).



Dr. Roger Fouquet

Doctor in Economics in 1997 from the University of Surrey.

He has research experience at the University of Surrey (UK), Imperial College of London (UK) and University of the South Pacific (Fiji).

Research field: long-term relationships between the development of the economy, technological change, energy consumption and climate change.

He works at the BC3 - Basque Centre for Climate Change.



Dr. Thomas Frederiksen

Doctor in Physics in 2007 from the Technical University of Denmark.

He has previous research experience in Denmark and Spain.

Research field: quantum transport theory and electronic structure methods. Theory and simulation of nanostructures and interfaces.

He works at the Donostia International Physics Center (DIPC).



Dr. Paola Fucini

Doctor rer. nat. in Biochemistry at the University Ludwig-Maximilians-Universität, Munich (PhD).

Research experience in the Cluster of Excellence of Macromolecular Complexes (CEF-MC), Buchmann Institute of Molecular Life Science (BMLS), Institut für Organische Chemie und Chemische Biologie, J. W. Goethe-Universität Frankfurt, Frankfurt am Main, Germany.

Research field: Structural biology of the ribosome.

She carries out her work at the CIC bioGUNE.



Dr. Zoraida Freixa

Doctor in Chemistry in 2000 from the Autonomous University of Barcelona.

She has experience at the University of Coimbra (Portugal), Universiteit van Amsterdam (Holland), Institut Catala d'Investigació Química and University of Barcelona (UB).

Research field: homogeneous catalysis, supramolecular chemistry and photochromic materials.

She works at the Applied Chemistry Department of the UPV/EHU.



Dr. Vadim Frolov

Doctor in Biophysics in 1998 from the State University of Moscow.

With research experience and group leader at the A.N. Frumkin Electrochemistry Institute of Moscow (Russia); Guest researcher at the National Health Institute in Bethesda (USA).

Research field: biophysics of cellular membranes and model; membrane dynamics, fusion and fission, mechanics and thermodynamics of small membrane systems.

He conducts his research at the Biophysics Unit (CSIC-UPV/EHU), as Group Leader.



Dr. Frank Girot

Doctor in Materials Sciences and Processes in 1987 from the University of Bordeaux.

He has research experience at University of Bordeaux 1 (France), Center for Composite Materials (USA) and Arts et Métiers ParisTech (France).

Research field: optimisation and simulation of manufacturing processes; application of nanotechnologies to manufacturing processes.

He has joined the Mechanics department at the Higher Technical Engineering School of Bilbao, UPV/EHU.



Dr. Humberto González Díaz

Doctor in Organic Chemistry in 2005 from the University of Santiago de Compostela.

Over 10 years of research experience in collaboration with groups from the EU, China, India and America.

Research line: (1) Chemistry-Biocomputing: Development of models, software and web servers for organic synthesis; CADD; the design of vaccines or the discovery of biomarkers. (2) Complex networks in MOLECULAR & BIO-SYSTEMS: Reaction networks in organic synthesis; Drug-Target networks; protein interaction networks (PINs); metabolic networks; disease-medication and epidemiological networks; Neurocomputing and cerebral cortex networks.

He carries out his work at the Organic Chemistry II Dept. of the Faculty of Science and Technology of the UPV/EHU.





Dr. Javier Gorosabel

Doctor in Physics in 1999 from the University of Valencia.

20 years of research experience at research centres in Spain, Denmark, the USA and the Netherlands

Research field: Explosive phenomena in the universe. The astrophysics of high energies. Optical polarisation in astronomical sources. Astronomical instrumentation. The automation of telescopes.

He carries out his work at the CSIC as the person responsible for the IAA-CSIC/UPV-EHU Associate Unit at the ETSI, Bilbao



Dr. Durk Gorter

Doctor in Humanities in 1993 from the University of Amsterdam.

He has previous research experience at University of Amsterdam (Holland), National Science Foundation (Holland) and Fryske Akademy (Holland). He has spent research periods in the UK, Canada, India, US and China.

Research field: studies in minority languages; multilingual education.

Coordinator of research networks in Europe.

He works at the department of Education Theory and History of the UPV/EHU.



Dr. Slawomir J. Grabowski

Doctor in Chemistry in 1986 from the University of Warsaw, Poland.

He has previous research experience at the Eidgenössische Technische Hochschule (ETH) Zürich (Switzerland), University of Uppsala (Sweden), University of Grenoble (France), Jackson State University (USA), University of Fukuoka (Japan) and the University of Poland.

Research field: Theoretical chemistry, Physics-chemistry, intermolecular interactions.

He works at the Faculty of Chemistry of the UPV/EHU and the Donostia International Physics Center (DIPC).



Dr. Marcelo E. Guerin

Doctor in Biochemistry and Molecular Biology in 2002 from the Leloir Institute, School of Sciences of the University of Buenos Aires (Argentina).

Research experience in the Structural Biochemistry Unit in the Pasteur Institute of Paris and senior researcher at the Mycobacteria Research laboratories in the Microbiology department of the State University of Colorado, USA.

Research field: Structural glycobiology.

He works at the Biophysics Unit (CSIC-UPV/EHU).



Dr. Aitor Hierro

Doctor in Molecular Biochemistry and Molecular Biology from the Biophysics Unit CSIC-UPV/EHU.

Post-doctoral research for the American Food and Drug Administration (FDA) and the US National Health Institute.

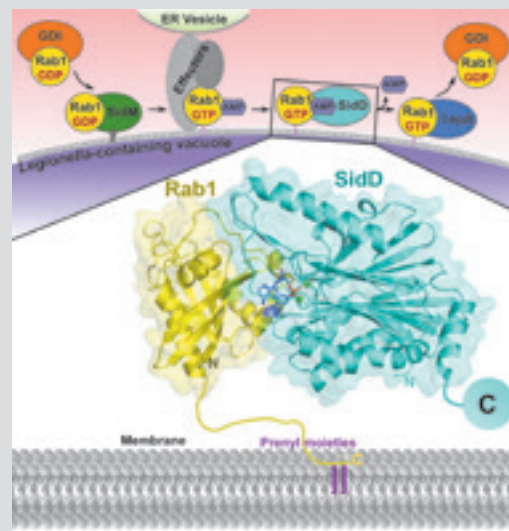
Research field: Structural biology, membranes traffic. Protein complexes.

He works at the CIC bioGUNE as group leader.

Noteworthy project

A mechanism that helps Legionella camouflage itself in the body has been discovered

The dreaded Legionella pneumophila bacterium, is responsible for legionnaire's disease, a disease that can cause pneumonia and in extreme cases, death. To infect us, this pathogen has developed a complex method that allows it to camouflage itself and pass unnoticed in our cells, thus preventing these from acting against it.



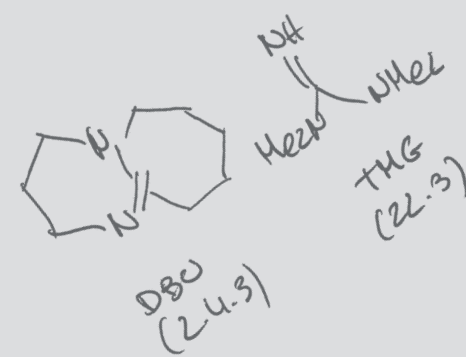
This is because the bacterium manages to manipulate the host cell so it passes unnoticed in it and multiplies without being destroyed.

The strategy of the bacterium consists in releasing almost 300 proteins into the cell, which in turn act on the proteins of the host to avoid being recognised as an infectious agent and pass unnoticed for long enough to multiply in the cell. One of these proteins, specifically the SidD protein of Legionella regulates a chemical modification involved in the process of intracellular camouflage. It is precisely the function of this protein that the research of CIC bioGUNE, the NIH and the BSC has described. Once Legionella has managed to multiply, the SidD protein unlocks cellular processes that favour the progression of the infection.

New targets

"Legionella pneumophila is an organism that over millions of years of evolution, has learned to manipulate our proteins for its own benefit, to thus favour infection", explains the CIC bioGUNE researcher, Aitor Hierro. "To know how they do it", he adds, "may help us manipulate our own proteins to our benefit."

The discovery of the mechanism that allows the bacteria to survive and thrive in our cells, could lead to the finding of new strategies. According to Dr. Hierro, "this knowledge not only reveals new targets that can be used for the design of inhibitors but that also teaches us molecular mechanisms that could be readapted and used, for example, in the selective transport of molecules with therapeutic usefulness."



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Dr. Konstantin Gusliyenko

Doctor in Solid Matter Physics in 1989 from the Metal Physics Institute in Kiev, National Science Academy of Ukraine.

He has previous research experience at centres in Austria, Germany, South Korea, Japan, Ukraine and the United States.

Research field: Theory of magnetism and magnetic materials: quantum magnetism, nano magnetism and micromagnetism, spin dynamics.

He works at the Materials Physics department of the Faculty of Chemistry of the UPV/EHU.



Dr. Andreas Heidenreich

Doctor in Chemistry in 1990 from the University of Marburg (Germany).

Research experience at the University of Tel Aviv (Israel) and at the Humboldt University of Berlin (Germany).

Research field: computer simulations of Coulomb explosions in clusters induced by ultra-intense and ultra-short pulses.

He works at the Chemistry department of the Faculty of Chemistry of the UPV/EHU in Donostia-San Sebastián.



Dr. Daniel Innerarity

Doctor in Philosophy.

He has previous research experience at centres in Germany (as Alexander von Humboldt-Fellow), Switzerland, Italy, France and Spain.

Research field: Political philosophy (governance in the global knowledge society).

He conducts his research at the Constitutional Law department of the Faculty of Law, UPV/EHU. He is responsible for the Democratic Governance Institute.



Dr. Maria José Iriarte Chiapuso

Doctor in History in 1994 from the University of the Basque Country.

More than 20 years of research experience.

Research field: Archaeology, paleobotany and paleopalynology.

She carries out her work at the Faculty of Arts of the UPV/EHU.



Dr. Nagore Iriberry

Doctor in Economics in 2006 from the University of California (San Diego, USA).

She has research experience at the Universitat Pompeu Fabra (Spain) and the University of California (USA).

Research field: behavioural and experimental economics. initial responses to games, role of beliefs and expectations in individual decision-making and games.

She works at the Department of Fundamentals of Economic Analysis, UPV/EHU.



Dr. Vladimir Kaberdin

Doctor in Biochemistry in 1991 from the University of Moscow.

He has previous research experience at centres in Taiwan, Austria and Belarus.

Research field: post-transcriptional control, processing and decay of RNA, bacterial stress responses.

He conducts his research at the Department of Immunology, Microbiology and Parasitology, Faculty of Science and Technology, UPV/EHU.



Dr. Andrey Kazansky

Doctor in Science (Physics and Mathematics) from the State University of Saint Petersburg.

Experience as the head researcher at the V.A.Fock Physics Institute in St. Petersburg. More than 50 stays as visiting professor in the USA, France, Germany, Denmark and Spain.

Research field: Computer simulation of the ultra-fast phenomenon in gases and metal interfaces.

He works at DIPC.



Dr. Shira Knafo

PhD in Neurosciences and Medicine at Ben-Gurion University, Israel.

Research experience at Ben-Gurion University of Israel, at the Severo Ochoa Centre Molecular Biology (CBMSO), the Cajal Institute and at the National University of Distance Education.

Research field: Neurosciences, ageing, Alzheimer's disease, anxiety disorder, synaptic plasticity.

She carries out her work at the CSIC-UPV/EHU Biophysics Unit.



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Dr. Sergey Korotov

Doctor in Scientific Computation in 1997 from the University of Jyväskylä in Finland.

He has previous research experience at Utrecht University (the Netherlands), Academy of Finland and Helsinki University of Technology (Finland), Mittag-Leffler Institute (Sweden) and University of Erlangen (Germany).

Research field: numerical analysis, finite element method, mesh generation.

He works at the BCAM, Basque Centre for Applied Mathematics.



Dr. Eugene Krasovskii

Doctor in Physics and Mathematics in 1987 from the Academy of Science in Ukraine.

More than 20 years of research experience at research centres in the Ukraine and Germany.

Research field: The science of the surface, the theory of the deflation/diffraction of electrons and photoemissions, computational methods of solid state theory.

He works at the Materials Physics department of the Faculty of Chemistry of the UPV/EHU.



Dr. Stefan Kurth

Doctor in Physics in 1995 from the University of Wurzburg, Germany.

He has research experience at the University of Antwerp - RUCA (Belgium), Tulane University (USA), Lund University (Sweden) and Free University (Germany).

Research field: Particle quantum physics, especially functional density theory, the temporal description of the transport of electrons through molecules and nanostructures.

He conducts his research at the nanobio-spectroscopy group of the Material Physics department of the Faculty of Chemistry of the UPV/EHU and the Material Physics Center (mixed centre of the CSIC and UPV/EHU).



Dr. Annick Laruelle

Doctor in Economics in 1998 from the Catholic University of Leuven, Belgium.

She has been visiting professor at several European universities. His latest position was professor at the University of Caen Basse Normandie, France.

Research field: Game theory and social choice.

She works at the Department of Fundamentals of Economic Analysis, UPV/EHU.



Dr. Charles Lawrie

Doctor in Biological Science in 2000 from the University of Oxford.

He has worked in business and academic departments in the UK. He has research experience at the Nuffield Department of Clinical Laboratory Sciences, University of Oxford (UK).

Research field: Use of primary genome techniques to identify the genes/micro-RNA involved in the pathology of cancer and their potential as a biomarker.

He works at the Biodonostia Institute as Director of Oncology Research.



Dr. Amaury Lendasse

PhD in Applied Sciences (applied mathematics, machine learning) Catholic University of Leuven, Belgium.

10 years of research experience in the USA (University of Memphis) and Finland (Aalto University).

Research field: Machine learning, environmental models, variable selection, industrial applications and chemometrics.

Carries out his work in the Department of Computer Science and Artificial Intelligence of the UPV/EHU in Donostia - San Sebastian.



Dr. Hartmut Luecke

PhD in Biochemistry and Crystallography in 1990 at Rice Houston University, Texas.

Research experience at the Max Planck Institute, Stanford University and UC Irvine Medical Center

Research field: Structure-function studies of membrane proteins. The discovery of drugs based on structural studies.

He carries out her work at the Biophysics Unit (CSIC-UPV/EHU).



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Dr. Michael Marder

Doctor in Philosophy of the New School for Social Research in New York.

He has research experience at York University (Canada), New School University (USA), Suffolk University (USA), Georgetown University (USA), St. Thomas More College-University of Saskatchewan (Canada) and Lisbon University (Portugal).

Research field: phenomenology, ethical and political philosophy, environmental philosophy.

He works at the Philosophy department of the UPV/EHU.



Dr. Juan Mareque

Doctor in Inorganic Chemistry in 1998 from the University of Missouri, St.

He has research experience at the United States (Massachusetts Institute of Technology and University of Missouri-St. Louis) and the United Kingdom (University of Edinburgh).

Research field: Bioinorganic and supramolecular chemistry, molecular recognition, biomedical and nanomedical imaging.

He carries out his work at CIC bioGUNE.



Dr. Anil Markandya

Doctor in the Economics of the Environment in 1975 from the London School of Economics, United Kingdom.

He has research experience at centres in the United Kingdom (London School of Economics, University College London, University of Bath), Italy (Fondazione Eni Enrico Mattei) the United States, (Princeton University, University of California, Harvard University, World Bank) and France.

Research fields: The economics of the environment and of the resources, climate change.

Member of the IPCC - International Panel of Experts on Climate Change - awarded the Nobel Peace Prize in 2007.

He conducts his research work at the BC3 (Basque Center for Climate Change), where he is Scientific Director.



Dr. Aurelio Mateo

Doctor in Chemistry in 2004 from the Queen Mary University of London (UK).

Young Investigator Award from Università di Trieste (2007), Eugen-Graetz Prize from Universität Freiburg (2009), RSEQ Young Investigator Prize (2011) and ECS Young Investigator Award from the Fullerene Division (2012).

He has research experience at Università di Trieste (Italy) and Freiburg Institute for Advanced Studies (Germany).

Research field: molecular and supramolecular materials.

He conducts his research at Polymat – Basque Center for Macromolecular Design & Engineering.



Dr. Iciar Martínez

Doctor in Science in 1990 from University of Tromsø (Norway) and in 1991 from UPV/EHU.

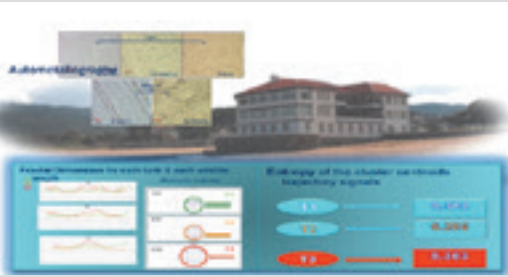
Research Professor of the CSIC (IIM Vigo), Visiting Professor at the University of Tromsø, Group Manager at SINTEF Fisheries and Aquaculture (Trondheim, Norway) and Chief Researcher at Nofima (Tromsø).

Research field: Identification and characterisation of bioactive compound in aquatic organisms, development of quick and non-invasive methods for detecting contaminants, pathogens and parasites and the development of methods for the authentication of foodstuffs.

She carries out her work at the Experimental Marine Biology and Biotechnology Research Centre, the Marine Station of Plentzia (PIE), University of the Basque Country, UPV/EHU in Plentzia



Noteworthy project



This new and fascinating line of research would not be possible without the unique infrastructure offered by the PIE. The Marine Station, which is spectacularly located, is equipped with unique experimental aquariums and cellular and molecular biology labs that allow for the carrying out of high quality research efforts, with both environmental contaminants as well as bioactive compounds, all under strictly controlled conditions.

The objective of our research is to identify new indicators and biomarkers, preferably non-invasive, that serve to identify stressed, contaminated, parasitised or sick aquatic organisms. We try to use the same strategy to characterise bioactive compounds that neutralise the negative effects of undesirable agents.

To start the process of identifying non-invasive indicators we established a joint effort with Systems Engineering and Automation Department of the UPV/EHU. The first experiment was carried out to study the effect of contaminant methylmercury on the sea bass (*Dicentrarchus labrax*). The behaviour of the live fish in the tank was monitored in a non-invasive manner, analysing the images obtained after processing the video generated by a small commercial camera submerged in the water in the tank. The fractal dimension and entropy of the group response to a stochastic event (a blow to the tank) of the fish contaminated with methylmercury were different from those obtained studying non-contaminated fish. Thus, this first work indicates that both parameters,

clearly have a potential diagnostic value. Also we carried out an analysis of conventional biomarkers in selected tissues of the same fish after culling them to assess the coherence of both methodologies. The diagram that illustrates this page shows the fractal dimensions and entropies of the trajectories of the centroids of the clusters in the tank with the control fish (T1), with the fish marked with VIE and that were untreated (T2) and with the fish marked and treated with methylmercury (T3), as well as the results of the autometallography of the muscle of treated and untreated sea bass. The samples treated with methylmercury display the expected deposits of heavy metal (absent in the control specimens) after autometallography; whereas the entropy of the signal of their trajectories had a lower value and the fractal dimension of their trajectories was significantly different from the values measured in the untreated fish. Thus, we consider that the information obtained using the conventional methodology and the new proposal to be consistent.

In the near future, we shall extend these studies to the characterisation of the effects of bioactive substances, in particular those of a marine origin, to counteract the negative effects of stressful and contaminating agents. Firstly, we will study the effect of selenium compounds as agents for neutralising the effects of methylmercury.

The implementation of this new strategy will allow for the identification, monitoring and studying of the responses of organisms to changes in their environment and will have application in the monitoring of the environment and in research. In addition, it will allow for avoiding the capture in fisheries and the culling in aquaculture, of the potentially stressed, contaminated or sick individuals, without any need to physically interfere with them. Similarly, it will allow for a significant reduction in the number of experiments and costs required to ensure the safety and quality of the fish, particularly in the aquaculture industry.

The application of engineering systems to the safety and quality of fish

This new line of research has emerged thanks to the collaboration of the Systems Engineering and Automation Department, UPV/EHU and the aquaculture industries - Tinamenor Group, Cantabria - and the fisheries - Pesqueras Echebastar, Bermeo - with the Marine Station of Plentzia-UPV/EHU-Ikerbasque.



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Dr. Ugo Mayor

Doctor in Biology in 2003 from the University of Cambridge.

Experience at the Lund University in Sweden and at the MRC Centre for Protein Engineering, WT CR UK Gurdon Institute and the Genetics department at Cambridge (United Kingdom).

Research field: biochemical and genetic characterisation of the locational pathways in functions and neuronal disorders.

He conducts his research at CIC bioGUNE.



Dr. Michele Modugno

Doctor in Theoretical Physics in 1998 from the University of Florence, Italy.

He has research experience at University of Florence (Italy), in Switzerland and at École Normale Supérieure of Paris (France).

Research field: Bose-Einstein condensation. Quantum “ultracold” gases in optical networks and potential disorders.

He works at the Department of Theoretical Physics and History of Science of the EPV/EHU.



Dr. Rafael Morales

Doctor in Physics from the University of Oviedo.

He has research experience at the University of Oviedo, in the CINN in Spain and at the University of California in San Diego (USA).

Research field: Interchange magnetism of paired multilayers and nanostructure magnetism.

He conducts his research at the Physics-Chemistry department of the Faculty of Science and Technology of the UPV/EHU.



Dr. Alejandro Müller

Doctor in Physics in 1989 from the University of Bristol (United Kingdom).

Research experience at the University of Bristol (United Kingdom), Universidad Simón Bolívar (Venezuela), University of Mainz (Germany), Hiroshima University (Japan).

Research field: Nucleation, crystallisation, morphology and physical properties of polymers, biopolymers, nanocomposites. Soft matter and structured fluids rheology.

He carries out his work at the POLYMAT and at the Polymer Science and Technology Department of the Faculty of Chemistry of the UPV/EHU.



Dr. Marc Neumann

Doctor in Technical Science (Environmental Engineering) in 2007 from ETH Zurich (Switzerland).

He has previous research experience in Switzerland (Eawag, ETH Zurich) and Canada (Laval University).

Research field: aquatic impact of climate change, adaptation of water infrastructures, planning and design in conditions of uncertainty.

He works at the BC3 - Basque Centre for Climate Change.



Dr. Jaume Navarro

Doctor in the History of Science in 1988 from the Autonomous University of Barcelona.

He has previous research experience at the University of Cambridge, Imperial College (United Kingdom) and the Max Planck Institute of Berlin (Germany).

Research field: The History of Science, especially the history of physics science.

He works at the Faculty of Philosophy of the UPV/EHU.



Dr. Ignacio Palacios

Doctor in Economics in 1995 from the University of Chicago.

He has previous research experience in the United States (Dartmouth College of the University of Stanford, the University of Chicago, Brown University) and the United Kingdom (London School of Economics).

Research field: Theoretical and applied microeconomy, game theory, behavioural and experimental economy.

He conducts his research at Bilbao LABEAN (UPV/EHU).



Dr. David Pardo

Doctor in Computational and Applied Mathematics in 2004 from the University of Texas (United States).

He has research experience at the Institute for Computational Engineering and Sciences (ICES) and the Department of Petroleum Engineering at University of Texas. USA.

Research field: computational simulations, multiphysics, investment and petroleum.

He works at the Applied Mathematics, Statistics and Operational Research department of the UPV/EHU.



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Dr. Florence Perrin

Doctor in Biological Sciences-Evolutionary neuroscience in the year 2000 from the University of Basel, Switzerland.

Experience in evolution of the central nervous system and pathologies at University of Geneva and University of Basel (Switzerland), McGill University (Canada) and University of Montpellier, INSERM (France).

Research field: underlying molecular mechanisms in neurodegeneration and neuroprotection processes and in the development and pathologies of the spinal cord, focused on amyotrophic lateral sclerosis, chronic motorneuronal disease and spinal cord damage.

She is the manager of the Integrative Biology and Neurodegenerative laboratory at the Neuroscience department of the Faculty of Medicine in the UPV/EHU.



Dr. Raúl Pérez Jiménez

Doctor in Chemistry from the University of Granada.

Research experience at Columbia University of New York, USA.

Research field: Microscopy of the atomic force of singular molecules. Research on protein mechanics and mechano-enzymology.

He carries out his work at the CIC bioGUNE.



Dr. Mario Piris

Doctor in Physics in 1997 from the University of Havana, Cuba.

He has previous research experience in Cuba, Italy, Germany and Spain.

Research field: Chemistry physics, quantum chemistry, reduced density matrix mechanics, natural orbit functional theory.



Dr. Jose Pomposo

Doctor in Chemistry in 1994 from the University of the Basque Country (UPV/EHU).

He has previous research experience in Materials Science. During 12 years he was responsible for the New Materials department at the Electromechanical Technologies Centre - Cidetec.

Research field: Launch of the "Macromolecular Click-Chemistry Laboratory" for the synthesis of nano-soft uniform objects and the research of nano-complex objects with self-assembly behaviour.

He works at the Materials Physics Center (UPV/EHU-CSIC).



Dr. Ignacio Pascual

Doctor in Physics in 1998 from the Autonomous University of Madrid.

He has research experience at the Free University of Berlin and Fritz-Haber Institute Max-Planck-Gessellschaf (Germany) and Institute of Material Science, Barcelona (Spain).

Research field: single atom/molecule spectroscopy and manipulation with a scanning-tunnelling-microscope.

He works at the CIC nanoGUNE as Nano-Imaging Group Leader.

Noteworthy project

A new step toward quantum computing

José Ignacio Pascual, an Ikerbasque researcher at CIC nanoGUNE, along with researchers from the Free University of Berlin, developed a method to manipulate the magnetism of atoms. This research allows for moving forward into the exploration of new methods of information storage and computation at an atomic scale. The work was published in the prestigious Nature Physics journal.

The advances in information computing and storage technology require the systems to becoming increasingly smaller and faster. The limits to miniaturisation are those set by nature: The materials are comprised of specific units, atoms, which cannot be divided. Then, the question that arises is: Can we encode the information at an atomic scale? The answer is, Yes, we can! But we have to manipulate a property of atoms individually and keep them in that state for a long enough to be able to read it.

To explore under which conditions one can read and write information through the manipulation of the magnetism of the atoms is one of the objectives of the Ikerbasque researcher José Ignacio Pascual of nanoGUNE and of his colleagues at the Free University of Berlin. Studying the behaviour of small magnetic molecules in contact with the surface of a superconductor has shown that it is possible to find a set up in which the superconductivity of surface "helps" the magnetism of the atom and facilitates the processes of reading and writing.

This study contributes to the end goal of computing using individual atoms, as it shows that it is possible to manipulate the magnetic state an atom is in and that this lasts long enough to be "read". The work was published

in the prestigious Nature Physics journal. Magnetism and superconductivity are two highly complex properties of the materials used in many technological applications in fields as diverse as information computing and storage, medicine, transportation, etc. Magnetism, the property that makes magnets sticking to iron, for example, is determined by a property of atoms known as 'spin'. This spin makes each atom to behave like a tiny magnet.

The spin of the atoms tend to be pointing towards a specific direction, that depends on how the atom interacts with its surroundings. The challenge of computing with spins thus consists in controlling this orientation using the electrical impulses as the data encoding method. "One of the problems that we encounter is that spin remains for very little time in that new position. The interaction with its surroundings ends up dominating it and it very quickly returns to its original position. If we store information with it, we need to be able to ensure that it keeps the position we give it for more time", explains José Ignacio Pascual. "It is as if we raised our hand to ask to speak; our natural state is to have our hands down, so that we have to be able to keep it raised long enough to convey our message", the Ikerbasque researcher adds.

$$\begin{aligned} & \nabla \cdot (\epsilon \nabla \phi) = -\rho \\ & \nabla \times (\mu \nabla \times \mathbf{A}) = \mu \mathbf{J} \\ & \nabla^2 \phi = -\rho / \epsilon \\ & \nabla^2 \mathbf{A} = -\mu \mathbf{J} \end{aligned}$$



Dr. Yuri Racovich

Doctor in Physics in 1995 from the National Science Academy of Minsk, Belarus.

Research experience at the Technical University of Brest; the University of Minho (Braga), Senior researcher at the CRANN, Trinity College (Dublin, Ireland).

Research field: Nanophotonics, spectroscopy and photonics application of particles and structures at a nano scale, microcavities optics, nano-biophotonics.

He works at the Materials Physics Center.



Dr. Rafael Pulido

Doctor in Biology in 1990 from the Autonomous University of Madrid.

Research experience at the CSIC (Spain), Salk Institute (USA), Dana-Farber Cancer Institute (USA), Max Planck Institut für Biochemie (Germany) and the Centro de Investigación Príncipe Felipe (Spain).

Research field: The role of protein phosphatase and kinases in human cancer.

He carries out his work at BioCruces - Bioef.



Dr. José Julio Rodríguez Arellano

Doctor in Biological Sciences - Neurobiology in 1995 from the Complutense University.

He has previous research experience in Switzerland (Novartis Pharma), France (INSERM), USA (Cornell Medical College and Florida Atlantic University) and the United Kingdom (University of Manchester).

Research field: Neuroanatomy and functional connectivity of neural circuits in the context of plasticity relating to memory under normal and pathological conditions.

He works at the Functional Neuroanatomy Laboratory at the Neuroscience department of the Faculty of Medicine of the UPV/EHU.



Dr. Susana Rodríguez

Doctor in Chemistry in 1999 from the University of Vigo.

She has research experience at the Institute of Environmental Biotechnology at Graz University (Austria), Minho University (Portugal) and Rovira i Virgili University (Tarragona, Spain).

Research field: production of ligninolytic enzymes, development of different techniques for the immobilization of microorganisms and the immobilization of enzymes, bioreactor design, development of bioprocesses, biological treatment of waste water containing dyes and the purification of enzymes.

She conducts her research at CEIT - Technical Studies and Research Centre.



Dr. Mª Cruz Rodríguez Oroz

Doctor in Medicine and Surgery from the University of La Laguna (Spain).

She has research experience at different centres in Spain, the United Kingdom and USA.

Research field: Parkinson's disease, mainly based on surgical treatment and the associated behavioural and cognitive problems, as well as the pathophysiology of basal ganglia of this disease.

She works at BioDonostia and Donostia Hospital.



Dr. Arthur Samuel

Doctor in 1979 from the University of California, San Diego.

He has previous research experience, which include a post-doctoral stay at the Bell Laboratories and stays at the Universities of Yale and Stony Brook, USA.

Research field: psycholinguistics, particularly, the cognitive processes involved in the recognition of spoken language.

He conducts his research at BCBL (Basque Center on Cognition, Brain, and Language).



Dr. Dirk Rübbelke

Doctor in Economics ("Dr. rer. pol.") in 2001 from the Chemnitz Technological University; qualification ("Dr. rer. pol. habil.") in 2006.

He has research experience in Environmental and Public Economics at the Oslo Center for International Climate and Environmental Research CICERO (Norway) and Chemnitz University of Technology (Germany). He has spent research periods at centres in Australia, Germany, Israel, Cuba and United Kingdom.

Research field: Environmental and public economics; specifically the international aspects of climate change and the benefits of climate change policy.

He conducts his research at the BC3 - Basque Centre for Climate Change.



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$$x \leq \frac{1}{\lambda'(x)} \rightarrow h_j \geq \exp.(2\mu)$$

A study published in Science reveals the true cost of agriculture within the context of climate change

Noteworthy project

Research reveals that allowing the use of land to be solely governed by agricultural markets translates into considerable financial and environmental costs for people. Despite the fact that the study took the United Kingdom as the object of study, the same methods can be applied to any area in the world, with similar results for most countries. In most of Europe, land use is dominated by agriculture. Almost half of the total annual value of agriculture in the EU is based on public subsidies that exceed 70%, 40% and 30% in the cases of Ireland, the United Kingdom and Spain respectively, to name but a few countries.



Dr. Unai Pascual

Doctor in Environmental Economics in 2002 from the University of York (United Kingdom).

He has previous research experience in Economy of the environment and development, applied to numerous countries around the world. He is a researcher at Cambridge and Manchester Universities (UK).

Research field: Economy of the environment and development, ecological economy, modelling of natural resources, the economy of biodiversity and ecosystems, global environmental change, links between poverty and the environment, preservation of the agrobiodiversity.

He works at the BC3 (Basque Centre for Climate Change).

The research team, led by Professor Ian Bateman of the University of East Anglia (United Kingdom), studied the profitability of such public support in the United Kingdom. To do this, it used half a million records of land use and concluded that the land use patterns gave poor value to society for the subsidy level received. The study suggested that the reorientation of public policies could significantly improve the situation. Together with the tangible financial costs in the form of agricultural subsidies, the research team calculated the present and future economic value of the use of agricultural land due to climate change, including the value of the food produced but also the associated environmental impacts, including the emissions of the greenhouse gases responsible for climate change. It also considered the impact of the reduction of wild species and biodiversity caused by intensive farming. With a view to the future, the research weighed the consequences of alternative land uses and assessed various alternative scenarios up to the year 2060.

The study shows the importance of including the value of the services of the ecosystem in decision making and to use all the potential benefits of working with the natural environment and strengthening the biophysical processes. It also recognises that there are some practical challenges. One of the key challenges is to ensure the participation of farmers in contributing to changes in land use to benefit society. Further, the research team recommends the reforming of the Common Agricultural Policy (CAP) of the European Union (EU). In revising the CAP as a mechanism of payment for the

services of the ecosystem, the farmers would gain a reward in exchange for providing a set of key ecosystem services, including the mitigation of climate change through the reduction of emissions of greenhouse gases, the regulation of water use, the preservation of the recreational areas and biodiversity.

According to Profesor Unai Pascual: "This study shows that the conventional support for intensive farming in Europe does not work sufficiently well for society. Instead, the policy should face the reality of excessive dependence on the agricultural markets, as this generates unnecessary costs to society in terms of negative environmental impacts, many of which may be irreversible, such as the loss of biodiversity." "We have assigned a value to these costs and we have discovered that if we change the policies dominated by the market in Europe, the flow of benefits that the scenario offers our society (for present and future generations) will continue to decline." "The evidence tells us that we must completely change our land use policies in order to maximise the economic benefits of the scenarios by for example reducing greenhouse gas emissions, the reduction of water pollution, the increase of recreational areas, green urban spaces and improvements in the biodiversity." "The EU's Common Agricultural Policy must explain the cost of not working with nature. It is high time to reward farmers for ensuring the vital services of the ecosystems that society values so highly. The farmers can become the administrators of our landscapes so that we as a society can pass them on to future generations in a healthy state."



Dr. Marta Sánchez Carbayo

Doctor in Medicine from Miguel Hernandez University (Alicante).

Research experience at the Memorial Sloan-Kettering Cancer Research Center (New York-USA), and at the CNIO (Spain).

Research field: Translational oncology, molecular pathology, biomarkers, bladder cancer.

She carries out her work at the CIC bioGUNE.



Dr. Gunar Schnell

Doctor in Physics from the New Mexico State University, USA.

He has research experience at Deutsches Elektronen-Synchrotron – DESY (Germany), Universiteit Gent (Belgium) and Tokyo Institute of Technology (Japan).

Research field: Experimental and phenomenological research of quantum chromodynamics and particularly the structure of the nucleon and hadronisation.

He works at the Faculty of Science and Technology of the UPV/EHU.



Dr. Eugeny Sherman

Doctor in Theoretical Physics in 1990 from the Landau Theoretical Physics Institute of Russia.

He has previous research experience at centres in the Canada, Austria, Russia and Germany.

Research fields: nanostructures, spintronics and quantum magnetism.

He works at the Physics-Chemistry department of the Faculty of Science and Technology of the UPV/EHU.



Dr. Amanda Sierra

Doctor in Neuroscience in 2003 from the Complutense University of Madrid.

She has previous research experience at research centres in Spain (Cajal Institute) and the USA (Rockefeller University, Stony Brook University and the Baylor Medical College).

Research field: Microglial cells in the interaction between phagocytosis and inflammation in the diseased brain.

She works at the Neuroscience department of the Faculty of Medicine of the UPV/EHU.



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Dr. Jens Siewert

Doctor in Physics from the University of Karlsruhe, Germany.

He has previous research experience at centres in USA, Italy and Germany.

Research field: quantum dynamics and transport in mesoscopic systems, quantum information theory.

He works at the Physics-Chemistry department of the Faculty of Science and Technology of the UPV/EHU.



Dr. Vyacheslav Silkin

Doctor in Physics and Materials Science in 1990 from the Russian Academy of Science.

He has previous research experience at centres in Russia, and Spain.

Research field: Ultra-fast particle dynamics.

He works at the Materials Physics department of the Faculty of Chemistry of the UPV/EHU.



Dr. Dmitri Sokolovski

Doctor in Theoretical Physics in 1985 from the “Bonch-Bruevich” Communication University of Leningrad.

He has previous research experience at centres in Russia, Germany and the United Kingdom.

Research field: Quantum theory.

He works at the Physics-Chemistry department of the UPV/EHU.



Dr. Enrique Solano

Doctor in Physics in 2000 from the Federal University of Rio de Janeiro, Brazil.

He has research experience in Peru, France, Germany and Brazil.

Research field: Multidisciplinary research in quantum optics; quantum information; quantum mechanics; condensed matter.

He works at the Chemistry-Physics department of the Faculty of Science and Technology of the UPV/EHU.



Dr. Vadim Soloshonok

Doctor in Organic Chemistry in 1987 from the Academy of Science in Ukraine.

He has previous research and teaching experience in Ukraine, Russia, Poland, Italy, Japan and the USA.

Research field: Organic chemistry, fluoridated chemistry, chiral nanotechnology, astrochemistry.

He works at the Organic Chemistry Department of the UPV/EHU.



Dr. Ivo Souza

Doctor in Physics in 2000 from the University of Illinois.

He has previously been Professor of Physics at University of California, Berkeley.

Research field: condensed matter theory. Computational electronic structure.

He works at the Materials Physics Center.



Dr. Francesca Tinti

Doctor in the History of the Medieval Church. Thesis awarded a prize by the University of Padua (Italy) in 2000.

She has previously worked at the University of Cambridge (United Kingdom) and the University of Bologna (Italy).

Research field: church organisation of the High Middle Ages, papal correspondence, preservation and transmission of documents of the High Middle Ages.

She works at the Medieval, Modern and American History department at the UPV/EHU.



Dr. Ilya Tokatly

Doctor in Physics in 1992 from the Electronic Technology Institute of Moscow.

He has previous research experience at centres in the United States, Russia and Germany.

Research field: Quantum physics and nanostructures.

He works at the Materials Physics department of the Faculty of Chemistry of the UPV/EHU.



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Dr. Radmila Tomovska

Doctor in Chemical Engineering from Saints Cyril and Methodius University, Skopje, Macedonia.

She has previous research experience at Saints Cyril and Methodius University, Department of Technology and Metallurgy, Skopje, Macedonia and at the Academy of Sciences of the Czech Republic.

Research field: photochemistry, photocatalysis, preparation and characterisation of materials, polymer surface modification.

She works at the POLYMAT Institute of the UPV/EHU.



Dr. Esther Torrego

Doctor in Linguistics (Romance Linguistics) in 1972 from the Complutense University of Madrid.

She has previous research experience at centres in the United States and Europe.

Research field: linguistic theory, syntax interface between syntax and phonology and syntax and semantics, comparative syntax and Spanish and Romance linguistics.

She works at the Euskara Institutua of the UPV/EHU.



Dr. Mustafa Tutar

Doctor in Computation Fluid Dynamics in 1998, department of Mechanical and Aerospace Engineering of the University of Hertfordshire, United Kingdom.

Research experience in Turkey and the United Kingdom.

Research field: Interactions of the structure of fluids for aerodynamic and/or hydrodynamic applications, turbulences modelling for different movement scenarios, renewable energy.

He works at Mondragon Unibertsitatea.

Noteworthy project



Dr. Koen Vandenbroeck

Doctor in Molecular Biology in 1998 from the Catholic University of Leuven, Belgium.

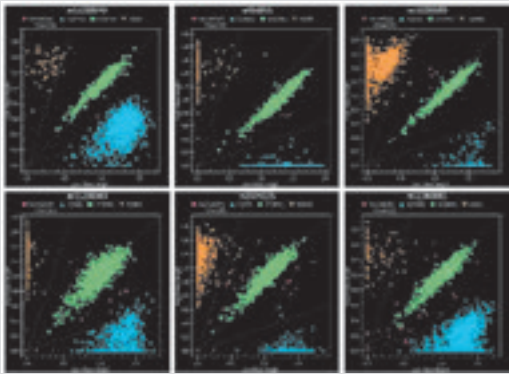
He has previous research experience at centres in Belgium, Italy and the United Kingdom.

Research field: Pharmacogenomics and the genetics of autoimmune diseases.

Head of the Neurogenomiks laboratory of the Neuroscience department of the UPV/EHU.

Neurogenomiks participates in a pan-European genetic study on multiple sclerosis

The Neurogenomiks laboratory, led by the Ikerbasque researcher Koen Vandenbroeck, has recently participated alongside the Basurto Hospital in a pan-European genetic study on multiple sclerosis, which has been confirmed the role of five genes in the predisposition to suffer from this disease.



Multiple sclerosis is a disease that leads to the disabling of the central nervous system and for which there is no definitive cure. It tends to affect relatively young women (the disease appears between 20 and 40 years of age) and its consequences can be particularly devastating, both professionally as well as in the family and personal aspects. It is the second leading cause of disability in young people, only behind traffic accidents and is a chronic disease that limits the quality of life and has a huge social impact.

A previous study done in 2011 pointed towards strong evidence that five loci (fixed positions on a chromosome, as the position of a gene or a genetic marker) were associated with the risk of multiple sclerosis but these were not conclusions that could be extrapolated to the entire genome,

so an extensive study was required to confirm it. This new study, in which centres in Germany, Spain, France, the Netherlands and Australia participated and in which the data of more than 20,000 people were analysed, confirmed that the MANBA, CXCR5, SOX8, RPS6KB1 and ZBTB46 markers are strongly associated with the risk of being afflicted by multiple sclerosis. Multiple sclerosis is currently incurable and there are only palliative treatments that the affected people respond to very differently. The advances in genetics open a whole new field of opportunities for the prevention and treatment of this and other diseases; the investigation of the genetic component of the response to treatments could allow for the finding of keys to "personalised medicine".

The Neurogenomiks Laboratory of Dr. Vandenbroeck, in collaboration with Alfredo Antigüedad, Chief of the Neurology service of the University Hospital of Basurto, was in charge of the genotyping of the polymorphisms in these five genes, in other words, they analysed the content of the genomic variations of these genes in the entire cohort of patients at the Hospital of Basurto as well as a control population of the Basque Country.

The results were published in the journal Brain, one of the most relevant in the field of neuroscience.

$$\begin{aligned} E\phi(x) &\leq \bar{E}\phi(m_i+r_i/2)\exp\left(\rho x \frac{w(y)}{w(y)} dy\right) \\ &\leq \bar{E}\phi(m_i+r_i/4)\exp\left(\mu \sum_{k=1}^K E_k h_k r_k\right) \end{aligned}$$



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Dr. Paolo Vavassori

Doctor in Physics in 1994 from the Politecnico di Milano, Italy.

He has previous research experience at centres in Italy, USA and France.

Research field: Changing magnetisation, related characterised dynamics and methods. Manufacturing and characterisation of magnetic nanostructures.

He works at CIC nanoGUNE.



Dr. Alexei Verkhatsky

Doctor in Science in 1993 from the Physiology Institute of Bogomoletz.

He has previous work experience at Manchester University (UK), Max-Delbrück Center for Molecular Medicine, Berlin (Germany), Kiev Institute of Physiology and Academy of Sciences (Ukraine).

Research field: Neuroscience, cellular signalling, neurodegeneration.

He works at the Neuroscience department of the Faculty of Medicine of the UPV/EHU.



Dr. Agustin Vicente

Doctor in Philosophy from the UPV/EHU.

He has previous research experience as a post-doctoral researcher at the University of Barcelona and guest researcher at the University of North Carolina, at Brown University, at the University College of London and at the University of Valladolid.

Research field: philosophy of the mind; specifically in mental causation and emergentism, relationships between language and thought.

He works at the Department of Logic and Philosophy of Science of the EPV/EHU.



Dr. José Vilar

Doctor in Physics in 1998 from the University of Barcelona.

He has research experience at Princeton University (USA), Rockefeller University (USA), Cornell University (USA) and Memorial Sloan-Kettering Cancer Center, New York (USA), where he was Laboratory Director.

Research field: Computational biology.

He works at the department of Biochemistry and Molecular Biology of the Faculty of Science and Technology of the UPV/EHU.



Dr. Ferdinando Villa

Doctor in Ecology in 1993 from the University of Parma, Italy.

He has previous research experience at Maryland and Vermont University (USA).

Research field: Theoretical ecology.

He works at the BC3 - Basque Centre for Climate Change.



Dr. Joel Villatoro

PhD in Optics in 1999 from the National Institute for Astrophysics, Optics and Electronics (Mexico).

Research experience at the UNAM and the Óptica A.C. Research Centre (Mexico), Case Western Reserve University (USA), ICFO and the University of Valencia (Spain), and Aston Institute of Photonic Technologies (United Kingdom).

Research field: Applied Photonics. Development of photonic devices and prototypes.

He carries out his work at the Faculty of Engineering of the UPV/EHU.



Dr. Lucia Vitali

Doctor (Dr. Rer. Nat.) in Physics in the Karl-Franzens Univeristaet in Graz, Austria.

She has previous research experience at the Max-Planck Institute for Solid State Research in Stuttgart, Germany.

Research field: surface science, spectroscopic and local scale structural research based on tunnel effect techniques.

She works at the Materials Physics Center (CSIC-UPV/EHU).



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Dr. John Walton

Doctor in Social History in 1974 from the University of Lancaster.

He has previous research experience at Lancashire Central University and Leeds Metropolitan University in the United Kingdom, where he held research manager posts.

Research field: Social history and the culture of tourism and that of coastal resorts, especially in the United Kingdom and Spain.

Editor of the History of Tourism (Routledge) newspaper since 2009.

He works at the Contemporary History Department of the UPV/EHU.



Dr. Lian-Ao Wu

Doctor in Physics in 1989 from the University of Jilin (China).

He has research experience at centres in China, Japan, Europe, United States and Canada.

Research field: Quantum information theory.

He works at the Physics-Chemistry department of the Faculty of Science and Technology of the UPV/EHU.



Dr. Ronen Zangi

Doctor in Chemistry in 1999 from the University of Chicago.

He has research experience at Columbia University and Chicago University (United States) and Groningen University (the Netherlands), and the Hebrew University of Jerusalem (Israel).

Research field: Chemical physics.

He works at the Organism Chemistry department of the Faculty of Chemistry of the UPV/EHU.



Dr. Kornelius Zeth

Doctor in Structural Biology from the Technical University of Munich (Germany).

He has research experience at University of Konstanz, MPI in Martinsried and ZMBP, University of Tübingen (Germany) and EMBL Outstation de Grenoble (France).

Research field: Biology mechanisms: biogenesis of proteins in bacteria and mitochondria, human antimicrobial peptides, iron storage in bacteria.

He works at the Biophysics Unit (CSIC-UPV/EHU).



Dr. Peicheng Zhu

Doctor in Applied Mathematics in 1997 from Fudan University in Shanghai, China.

Doctor in fluid dynamics from Kyushu University in Fukuoka, Japan (2001).

He has previous research experience at the University of Technology (Germany), Kyushu University and Japan Society Promotion for Sciences (Japan), Beijing Institute of Applied Physics and Computational Mathematics (China).

Research field: Phase transition models. Differential partial equations analysis.

He works at the Mathematics Department of the UPV/EHU.



Dr. Arkady Zhukov

Doctor in Science in 1988 from the Physics Institute of the Russian Academy of Science.

Qualification (Doctor in Science) from the State University of Moscow in 2010.

Manuel Laborde Werlinden award 2004.

He has previous research experience at the Institute of Applied Magnetism and the Institute of Materials Science, CSIC (Spain) and the Moscow State University.

Research field: Magnetic materials, magnetic cables, amorphous nano-crystalline and granular magnetic materials, magnetoelectric effects, transport properties, magnetic properties.

He works at the Materials Physics department of the UPV/EHU.



Dr. Jose Luis Zugaza

Doctor in Pharmacy in 1993 from the University of Santiago de Compostela.

He has research experience at Santiago de Compostela University, the Salamanca Cancer Research Centre and the Andalusian Initiative for Advanced Therapies (Spain), Imperial Cancer Research Fund, London (UK) and the Centre for Pharmaceutical Studies, Faculty of Pharmacy, University of Paris XI (France).

Research field: Cell signalling in cancer and neurodegeneration.

He works at the Faculty of Science and Technology of the UPV/EHU.



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ERC. European Research Council

The ERC (European Research Council) was created by the European Union in 2007. It is the first European organisation that promotes research projects based on scientific excellence.

ERC Advanced Grants

The ERC Advanced Grants programme is aimed at researchers with an exceptional background and leadership skills, who have undertaken pioneering and highly ambitious projects in life sciences, experimental sciences and engineering or social sciences and humanities.

ERC Starting Grants

The aim of the ERC Starting Grants is to provide support to young researchers so that they develop their research career in Europe; these are intended for researchers who have demonstrated their capacity to become independent leaders.

These projects are granted for the research fields of life sciences, experimental sciences and engineering research or social sciences and humanities.



Dr. Manuel Carreiras

Doctor in Psychology in 1984 from the University of La Laguna.

He has research experience at University of La Laguna (Spain), Umeå Universitet (Sweden), University of Exeter and Oxford University (United Kingdom), University of Massachusetts at Amherst and University of Oregon (United States), University of New South Wales (Australia) and University College of London (United Kingdom).

Research field: psycholinguistics, neurocognition of language.

He researches at the BCBL (Basque Centre on Cognition, Brain and Language), where he is Scientific Director.

Manuel Carreiras is leading an ERC Advanced Grants project called Bi-literacy: Learning to read in L1 and in L2.

The aim of this research project is to identify the neural substrates of the reading process and the cognitive components these are comprised of, with special attention to individual differences and reading disabilities, as well as researching the relationship between the specific cognitive functions and the changes that take place in the neural activity during the reading learning process in L1 and in L2.

The results of this project will provide a greater understanding of how the general factors and the specific neurocognitive factors of language underlie the individual differences - and reading disabilities - in the acquisition of reading of L1 and L2.

The project started in 2012 and it will end in 2017.



Dr. Enrique Zuazua

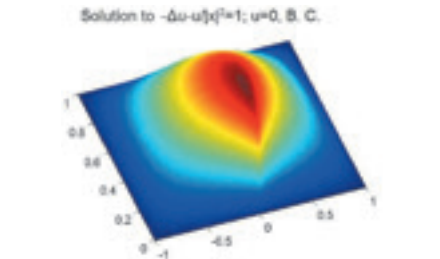
Doctor in Mathematics in 1988 from Pierre and Marie Curie University, France and from the University of the Basque Country-Euskal Herriko Unibertsitatea in 1987.

Euskadi award 2006 for Science and Technology from the Basque Government and the National “Julio Rey Pastor” award from the MICINN.

He has previous research experience at the Autonomous University of Madrid and Madrid Complutense University (Spain) and Ecole Polytechnique (Paris, France). He has spent research periods in France, Brazil and United States.

Research field: Partial differential equations, numerical methods, control and optimal design theory.

He researches at the BCAM (Basque Centre for Applied Mathematics).



Enrique Zuazua leads the ERC Advanced Grants project NUMERIWAVES. The research that he is carrying out with this project has the aim of obtaining new analytical tools and numerical schemes.

Moreover, this will contribute towards significant progress in some applied fields, where the matters that are the object of the study play a decisive role.

Together with the analytical and numerical analysis of these problems, a mathematical simulation platform will be installed to perform computer simulations and explore and visualise some of the most significant and complex phenomena.

The project started in 2010 and it will end in 2015.



Dr. Luis Liz-Marzán

Doctor in Chemistry in 1992 from the University of Santiago de Compostela.

He has previous research experience at the University of Santiago de Compostela and University of Vigo (Spain) and University of Utrecht (the Netherlands). He has spent research periods in Japan, United States, Australia and Germany.

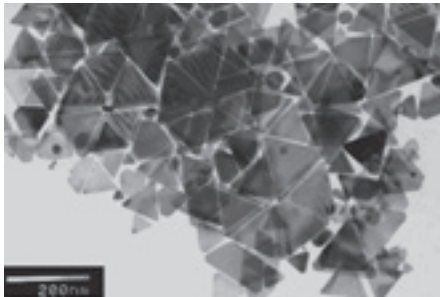
Research field: synthesis and assembly of nanoparticles, development of sensors and diagnosis tools based on nanoparticles.

He researches at CIC biomaGUNE, where he is Scientific Director.

Luis Liz-Marzán manages the project entitled ERC Advanced Grant PLASMAQUO; Development of plasmonic quorum sensors for understanding bacterial-eukaryotic cell relations. The aim is to create new nanostructured materials based on crystalline assemblies of anisotropic plasmonic nanoparticles (gold/silver).

The project will use nanoparticle-based diagnosis techniques and will design a biosensor to study how bacteria communicate with each other and with other cell colonies. This is very important information to combat diseases.

The project started in 2011 and it will end in 2016.



ERC
Advanced
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New
ERC

Dr. Arkaitz Carracedo

Doctor in Biological Sciences in 2006 from the Complutense University (Madrid).

He has previous research experience at the Memorial Sloan-Kettering Cancer Center Hospital (USA) and Beth Israel Deaconess Medical Centre, Harvard Medical School (USA). He has spent research periods in France and Spain.

Research field: Study of the contribution of the reprogramming of the metabolism to the biology of cancer cells, and the implication of the signalling pathways in the regulation of the cancer's metabolism, with special emphasis on prostate cancer.

He works at the Proteomic Unit of CIC bioGUNE.

The project that will be undertaken by Arkaitz Carracedo on the "Necessary metabolic requirements for the health of prostate cancer", is based on understanding how nutrition, which affects both a single cell as well as people, can determine the behaviour of prostate cancer. Carracedo and his team of his group considered that understanding the nutritional and metabolic foundations of the tumour could help improving its prevention, detection and treatment.

The project started in 2013 and it will end in 2018.



Dr. David Mecerreyes

Doctor in Science in 1998 from the University of Liege, Belgium.

He has previous research experience at Stanford University (United States), IBM Almaden Research Center (United States), and the CIDETEC Foundation (Spain).

Research field: Polymer chemistry, Organic catalysis, Polymers that are non-harmful for the environment, sustained polymerisation reactions.

He researches at the POLYMAT in the UPV/EHU.

The Innovative Polymers for Energy Storage project aims to fully develop the field of polymers for energy storage by using an innovative macromolecular engineering approach to get an insight into their unique electronic properties.

The main goal is to develop polymers at the next level to store and use energy, technologies that are currently dominated by inorganic electrode materials.

Mecerreyes works on the chemistry of polymers using innovative methods such as organic catalysis, new ionic polymers and macromolecular architectures.

The project started in 2012 and it will end in 2017.



Dr. Rainer Hillenbrand

Doctor in Physics in 2001 from the Technical University of Munich.

He has research experience at the Max Planck Institute of Biochemistry (Martinsried, Germany), where he was Nano Photonics group leader. He has been visiting professor at different USA and Spanish organisations.

Research field: Nano-optics and materials characterisation.

He researches at the CIC nanoGUNE as Nano-optics Group Leader.

The subsidised project is called "Spectroscopic Field Nanotomography

Close in Infrared and Terahertz Frequencies", and its main aim is the development of a new microscopic technique to obtain 3D images of extremely small structures, measured in nanometres (millionths of a metre).

The project started in 2010 and it will continue until 2015.



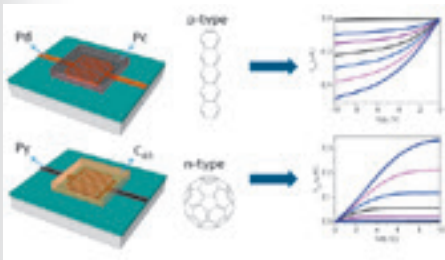
Dr. Luis Hueso

Doctor in Physics in 2002 from the University of Santiago de Compostela.

He has previous research experience at Leeds University (United States), Institute for Nanostructured Materials Studies (Italy) and Cambridge University (United Kingdom).

Research field: Electronic devices with organic semiconductors and nanofibres. Memory devices.

He researches at the CIC nanoGUNE as Nano-devices Group Leader.



"Spin Transport in Organic Semiconductors" is the title of the project which obtained the European grant, the aim of which is the research of new materials to manufacture electronic devices at a nanometric scale, replacing the silicon with organic molecules. It is therefore a search for a possible alternative to current electronics, in which physics, materials science and electronic engineering converge.

The project started in 2011 and it will continue until 2016.



Dr. Thomas Schäfer

Doctor in Chemical Engineering.

He has previous research experience in engineering of biological procedures, membranes separation and monitoring techniques at research centres in Germany, the Netherlands, Australia, Portugal, Italy and Spain.

Research field: sustainable separation processes through the use of benign materials, interfaces of stimuli sequences for separation systems and artificial smell systems, membranes separation in microreactor technology.

He researches at the Basque Centre for Macromolecular Design & Engineering - POLYMAT.

"MATRIX" ("Mixed-Matrix Interfaces for Enhanced Fine Chemicals Downstream Processing and Monitoring") is the name of the project obtained by Thomas Schäfer.

It involves a multidisciplinary project. Joining the recent progress made in biology/biochemistry, chemistry and materials science and combining these fields with the principles of chemical engineering, the project's aim is to create a more selective and versatile synthetic membrane for use in subsequent transformation processes of the chemicals industry.

The project started in 2008 and it will continue until 2014.



Dr. Geza Tóth

Doctor in Electric Engineering in 2000 from the University of Notre Dame, Indiana, USA.

He has previous research experience at Institute of Photonic Sciences (Spain), Wigner Research Centre for Physics (Hungary), Max Planck Institute of Quantum Optics (Germany) and Oxford University (United Kingdom).

Research field: Quantum information.

He researches at the Theoretical Physics and History of Science department of the Faculty of Science and Technology of UPV/EHU.

The work has been presented under the caption of "Generation and detection of multi-particle entanglement in quantum optical systems".

It is largely theoretical research, although applicable to experimentation, on the so-called quantum entanglement, a phenomenon discovered in 1935 by three physicists, including Albert Einstein. This phenomenon has application in metrology, as it allows for a great degree of precision to be achieved when measuring certain quantities on an atomic scale.

The project started in 2008 and it will end in 2016.

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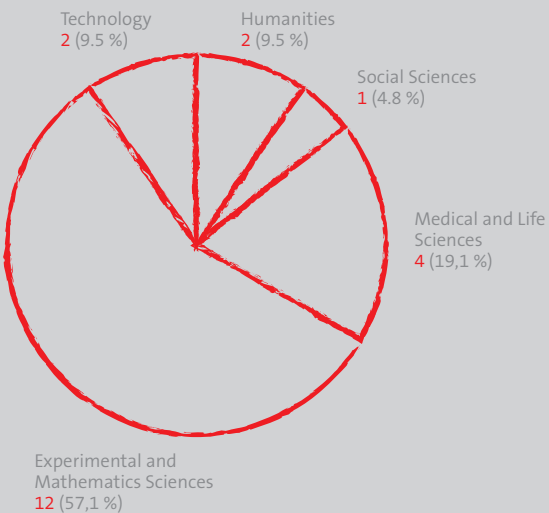
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MAIN DATA Research Fellows

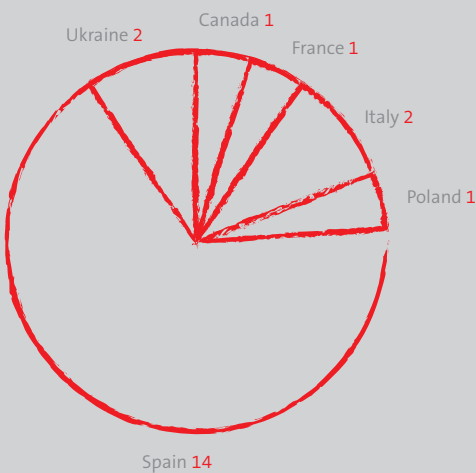
Researchers by knowledge field

(Total 21)



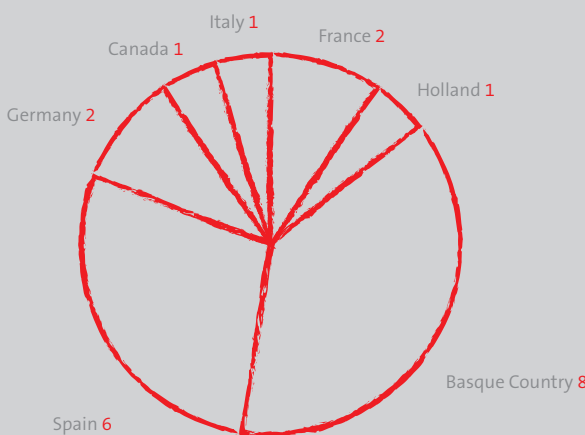
Nationality of the researchers

(Total 21)



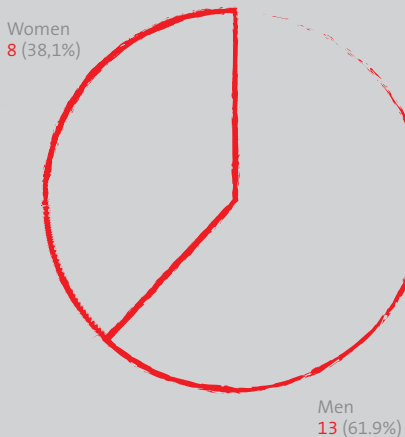
Country of origin of the researchers at the time they were hired

(Total 21)



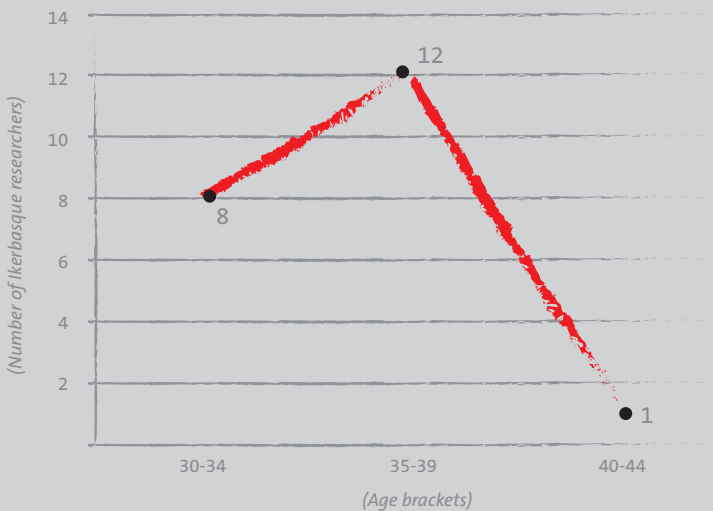
Researchers Gender

(Total 21)



Distribution of researchers by age

(Total 21)



Assignment Centres of the Research Fellows:

(Total 21)



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Research Fellows

In 2013 we launched the second edition of the Research Fellow programme to attract and keep in the Basque Country, experts in different branches of knowledge who were under the age of 40, with the aim of creating a source of new talent of scientists and researchers. Thus, the hiring of scientific senior scientists is complemented with another profile of people who can give continuity to Basque research in the longer-term.

Research Fellow programme fulfils a dual function: on one hand, to attract scientists who are developing their work overseas, including the local researchers who left at some point in their career, and on the other hand to offer those who are already researching in the Basque country, opportunities to consolidate their careers.



Jesús Bañales

Doctor in Biochemistry in 2006 from the University of Navarre.

He has research experience in Spain, France and the United States.

Research field: study of the pathophysiology of the liver, functions of bile acid, microRNA and metabolites in normal liver function, and study of liver diseases.

He has joined Bionostia.



Iraide Alloza

Doctor in Molecular Biology in 2003 from Queen's University de Belfast (United Kingdom).

She has previous research experience at centres in the United Kingdom and Spain.

Research field: identification and analysis of prognostic biomarkers associated with cerebrovascular diseases.

She has joined the Neurogenomiks, the department of Neuroscience at the UPV/EHU.



Mariam Bouhmadi

Doctor in Theoretical Physics in 2003 from the Autonomous University of Madrid.

10 years of research experience at centres in the United Kingdom (Institute of Cosmology and Gravitation - Portsmouth University, Portsmouth), Portugal (Higher Technical Institute, Lisbon) and Spain (CSIC-IEM, Madrid).

Research field: Late acceleration of the universe, quantum cosmology and modified gravity theories.

She has joined the Theoretical Physics department of the UPV/EHU.



Pepa Cabrera

Doctor in Physics in 2005 from the Surface Science Research Centre-Department of Chemistry, Liverpool University (United Kingdom).

She has worked in the field of computational studies of molecule-surface interactions and dynamics since 2005.

Research field: interaction of small molecules with surfaces. Specifically, water ice modelling on ion substrates and graphite surfaces, and the behaviour of water on transition metal surfaces.

She has joined the Donostia International Physics Center (DIPC).



Mónica Carril

Doctor in Organic Chemistry in 2006 from the UPV/EHU

Postdoctoral researcher at the RWTH (Aachen, Germany) and at the TUM (Munich, Germany) in collaboration with DSM Natural Products (Kaiseraugst, Switzerland).

Research field: Synthesis and biofunctionalisation of nanoparticles as contrast agents for molecular imaging.

She has joined the CIC biomaGUNE.



David Casanova

Doctor in Chemistry in 2006 from the University of Barcelona.

Fulbright researcher at the University of Berkeley (USA) and Ramon y Cajal researcher at the Complutense University of Madrid and at the University of Barcelona.

Research field: (i) Computation of solar cells sensitised by dye; (ii) theory of the processes of singlet fission for the production of solar energy; (iii) development and implementation of methods for the study of the electronic structure of excited states and (iv) symmetry of the electronic structure and its properties.

He has joined the Polymers Science and Technology department of the UPV/EHU.

$$\begin{aligned} 2 + z &\leq \omega(x) \leq 8 + z \\ \begin{cases} \phi_{ij} + h_{ij} \omega(x) \phi_j = 0 \\ \phi_j(m_j) = 1 - \phi_j(m_j) = 0 \end{cases} \text{ for } j \in \mathcal{N} \\ \begin{cases} \phi'' + h_{ij} \alpha_{sj}(h_j(x - m_j)) \phi_j = 0 \\ \phi(m_j) = 1 - \phi_j(m_j) = 0 \end{cases} \end{aligned}$$



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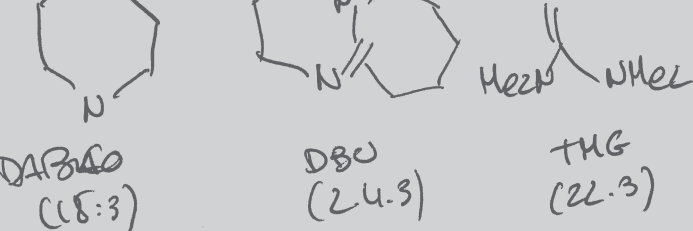
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Martina Corso

Doctor in Physics in 2006 from the University of Zürich (Switzerland).

Research experience in Switzerland, Spain and Germany.

Research field: electronic structure and scanning tunnelling and atomic force microscopy characterization of the morphology of low-dimensional systems, and angle-resolved photoemission.

He has joined the Materials Physics Center (CFM) CSIC-UPV/EHU.



Abel de Cozar

Doctor in Organic Chemistry in 2008 from the University of Castilla la Mancha.

Research experience in Holland, Spain and the United Kingdom.

Research field: reaction mechanisms, metallophilic interactions, computer-aided design of chemical compounds.

He has joined the Organic Chemistry department of the UPV/EHU.



Daniel Erro

Doctor in Signal Theory and Communications in 2008 from the Universitat Politècnica de Catalunya (UPC).

Research experience in Catalonia and Euskadi.

Research field: voice conversations, speech synthesis, speech signal analysis, modelling, transformation, vocoding.

He has joined the AHOLAB signal processing laboratory, UPV/EHU.



Arantzazu García

Doctor in Physical Sciences in 2003 from UPV/EHU.

She has previous research experience at centres in the United Kingdom, United States and Spain.

Research field: modelling electron transport in nanoscale; theoretical investigation of electron processes on nanostructured surfaces.

She has joined the Donostia International Physics Center (DIPC).



Vitaly Golovach

Doctor in Theoretical Physics in 2005 from the University of Basel (Switzerland).

He has research experience in France, Germany and Switzerland.

Research field: Majorana fermion in hybrid semiconductor and superconductor systems; quantum computation, spintronics and nanoelectronics.

He has joined the Materials Physics Center (CFM) CSIC-UPV/EHU.



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Daniel Marino

Doctor with European Doctorate Mention in Biological Sciences in 2006 from the Public University of Navarre.

Research experience in Spain and France.

Research field: plant nutrition and metabolism, plant molecular biology, plant-microbe interactions.

He has joined the Plant Biology and Ecology department of the UPV/EHU.



Clara Martin

Doctor in Cognitive Science (mention in Neurosciences) in 2005 from the University of Lyon, France.

She has previous research experience at centres in the United Kingdom, France and Spain.

Research field: bilingual language comprehension and production and interaction between the face and voice processing in social interactions.

She has joined the BCBL.



Ander Matheu

Doctor in Molecular Biology in 2005 from the Autonomous University of Madrid.

Research experience in Spain and the United Kingdom.

Research field: characterisation of brain cancers and population study of cancer mother cells.

He has joined Biodonostia Institute.



Noemi Navarro

Doctor in Economics in 2003 from Carlos III University.

Prior research experience at centres in Canada (Université de Sherbrooke, Université de Montréal), Spain (Universidad de Málaga, Universidad de Navarra) and Belgium (Université Catholique de Louvain).

Research field: Economics, Game theory, Social networks

She has joined the Department of Fundamentals of Economic Analysis of the UPV/EHU



Alexey Nikitin

Doctor in Theoretical Physics in 2005 from the Radiophysics and Electronics A.Ya.Usikov of Ukraine.

Previous research experience in Spain and the Ukraine.

Research field: Qualitative and quantitative methods in photonics/plasmonics.

He has joined the CIC NanoGUNE.



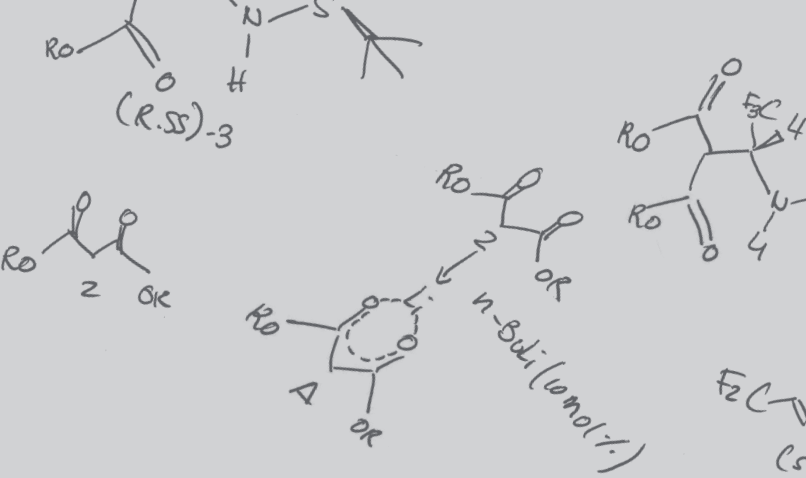
Gianni Pagnini

Doctor in Environmental Sciences in 2005 from the University of Urbino, Italy.

Research experience at research centres in Italy ISAC-CNR, ENEA and CRS4.

Research field: Mathematical and numerical modeling of environmental flows

He has joined the BCAM - Basque Centre for Applied Mathematics.



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Post-doctoral Programme

Ikerbasque manages the Post-doctoral programme of the Department of Education, Language Policy and Culture of the Basque Government.

This programme finances the training of post-doctoral researchers which includes a training period of two years abroad and a third year in the Basque Country.



Acha Sagredo, Amelia

Destination abroad
University of Liverpool, United Kingdom.
Destination in Euskadi
Faculty of Medicine and Odontology
Project title
Epigenetic profiling and biomarker development for the clinical management of head and neck tumours
Field: Medicine



Alonso Masa, Javier

Destination abroad
Functional Materials Laboratory at University of South Florida (Tampa, FL)
Destination in Euskadi
BCMaterials | Basque Centre for Materials, Applications and Nanostructures
Project title
Collective Magnetism and Exchange Bias in Nanostructures: Roles of Surface and Interface Spins
Field: Nanomagnetism



Arrizabalaga, Onetsine

Destination abroad
GSI Helmholtzzentrum für Schwerionenforschung GmbH, Germany.
Destination in Euskadi
ESS Bilbao
Project title
Radiobiological studies on Embryonic Stem Cells related to Ion Beam Therapy.
Field: Biomedicine



Del Castillo, Urko

Destination abroad
Feinberg School of Medicine, Northwestern University, (Chicago, EE.UU.)
Destination in Euskadi
Biophysics Unit (CSIC-UPV/EHU)
Project title
Regulation of motor-mediated microtubule sliding
Field: Cellular biology



Errea, Ion

Destination abroad
IMPMC in Paris, France
Destination in Euskadi
Donostia International Physics Center
Project title
Anharmonic effects in superconductors
Field: Physics



Barbero González, Iker

Destination abroad
Centre for Citizenship, identities and governance, United Kingdom
Destination in Euskadi
UPV/EHU. Administrative Law department
Project title
Migrations and new citizenship models
Field: Humanities



Calzada Mujika, Igor

Destination abroad
University of Oxford, United Kingdom.
Destination in Euskadi
Mondragon Unibertsitatea
Project title
Basque City & Future of Cities and Regions
Field: Social Sciences



Granados Mateo, Eduardo

Destination abroad
MIT, USA.
Destination in Euskadi
Donostia International Physics Center
Project title
Single-cycle optical pulses and isolated attosecond pulse generation
Field: Physics



Jelenkovic, Aline

Destination abroad
University of Helsinki, Finland
Destination in Euskadi
UPV / EHU. Department of Genetics, Physical Anthropology and Animal Physiology
Project title
Cardiovascular Disease: Determining risk factors and mode in which they are influenced by physical development in childhood and adolescence.
Field: Biology

● **López de la Calle, Oier**

Destination abroad
University of Edinburgh
Destination in Euskadi
UPV-EHU. IXA Group
Project title
Automatic Knowledge Extraction
by Reading Wikipedia
Field: Information technology

● **Moreno Cano, Antonia**

Destination abroad
“FCV” Cardiovascular
Foundation (Colombia)
Destination in Euskadi
UPV/EHU. Journalism
department
Project title
Survey of Social Perception
of Climate Science and
Change in Colombia
Field: Journalism

● **Salado Rivera, Javier**

Destination abroad
University of Birmingham,
United Kingdom
Destination in Euskadi
UPV/EHU. Department of
Inorganic Chemistry
Project title
High resolution structural
characterisation and precise
synthetic control of gold
shell nanostructures for
protein immobilization
Field: Chemistry

● **López Romo, Raúl**

Destination abroad
Queen’s University of
Belfast, United Kingdom
Destination in Euskadi
UPV/EHU. Contemporary
History department
Project title
The seventies: the lead
decade. Discourses and social
practices on the victims
of terrorism in the Basque
Country and Northern Ireland
Field: Humanities

● **Olabarria, Markel**

Destination abroad
Columbia University, USA.
Destination in Euskadi
UPV-EHU. Neuroscience
department
Project title
Targeting astroglial alterations
as a potential therapeutic
approach in Alzheimer’s
disease and other major
neurodegenerative diseases
Field: Neuroscience

● **Salsamendi Pagola, Egoitz**

Destination abroad
University of Ulm, Germany
Destination in Euskadi
UPV/EHU. Department of
Zoology and Animal Biology.
Project title
The relationship between
habitat degradation and the
incidence of viral pathogens
in chiropterans that are
detrimental to human health.
Field: Biology

● **Marín, Eugenia**

Destination abroad
MIT, USA.
Destination in Euskadi
BCBL- Basque Centre on
Cognition, Brain and Language
Project title
Behavioral and Neural Study of
Priming Effect
Field: Psychology

● **Puente García, Angel Ramón**

Destination abroad
Ludwig Maximilians
Universitat, Germany.
Destination in Euskadi
Department of Organic
Chemistry I (UPV/EHU)
Project title
Dynamic kinetics and
mechanisms of catalytical
and enantioselective
transformations.
Field: Chemistry

● **Suárez Bilbao, Saioa**

Destination abroad
School of Earth and Sciences.
Cardiff University (Cardiff,
Wales, United Kingdom).
Destination in Euskadi
UPV/EHU. Department of
Mineralogy and Petrology
Project title
Evolution of the platinum
group minerals and platinum
group elements in oxidising
surface environments (gossans
and laterites). From deserts to
tropical areas
Field: Geology

● **Valverde, Laura**

Destination abroad
Institute of Legal Medicine.
University of Münster
(WWM), Germany
Destination in Euskadi
UPV/EHU. BIOMICS
Research Group
Project title
Epigenetic approach for
discriminating monozygotic
twins in criminalistics
Field: Genetics

● **Uria Garin, Larraitz**

Destination abroad
Laboratoire IKER. Campus
de la Nive (UPPA), France
Destination in Euskadi
UPV/EHU. IXA Group
Project title
Analysis and processing
of the dialects of the
French Basque Country
Field: Humanities

● **Zarraonandia
Martínez, Iratxe**

Destination abroad
National Laboratory,
Chicago, USA.
Destination in Euskadi
Department of Genetics,
Physical Anthropology
and Animal Physiology
Project title
Marine biodiversity and
impact in the ecosystem:
Metagenomics
Field: Genetics

$$0 < w_* \leq w(x) \leq w^*$$
$$T_w := \int_0^{\infty} \sqrt{w(x)} dx.$$

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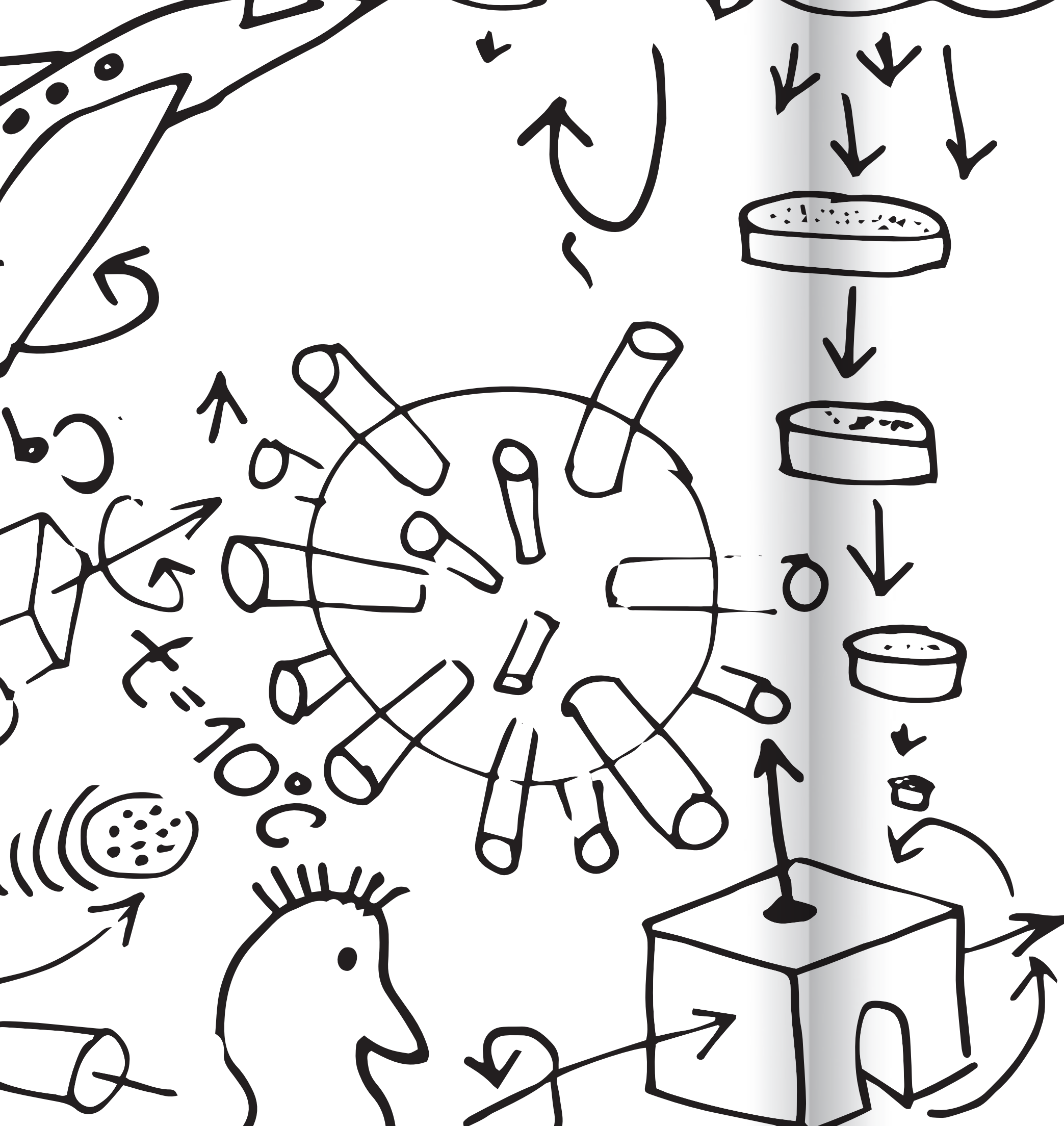
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Ikerbasque and the Chair of Scientific Culture of the UPV/EHU participated with ‘**Two cultures and beyond: Science, Society and Development**’ in the summer courses of the University of the Basque Country/Euskal Herriko Unibertsitatea (UPV/EHU). At the Miramar Palace of Donostia-San Sebastian for three days the event gathered together well-known experts and communicators who inter alia dealt with the increasing interaction that occurs between the sphere of science and the social environment in which the scientific activity takes place.

There was a discussion on topics such as the existence of a large divide between the scientific culture and the literary one, which in practice means that most people are completely unaware of science, both of the scientific fact as well as of the scientific culture, as the literary culture is that which has a greater social presence and to which more people have access.

The incidence of science on the lives of people, through the use and enjoyment of its products, as well as the effect that it has on economic development, are elements that can help bring together the cultural distance between the major branches of knowledge, the experimental and natural sciences, on the one hand, and the arts and social sciences, on the other.

The speakers included the director of the course and the Chairman of Scientific Culture of the UPV/EHU, Juan Ignacio Pérez, the professor of the University of Seville, Manuel Lozano Leyva; José Manuel López Nicolás, professor of the University of Murcia; Jaume Navarro, philosopher and Ikerbasque researcher and the professors of the UPV/EHU Sara de la Rica Goiricelaya and Itziar Laka.

In the course, José Manuel Sánchez Ron, Member of the Royal Spanish Academy of Language and Cesar Tomé, the editor of Mapping Ignorance, also took part.

3.1

SUMMER COURSE

Two cultures and beyond: Science, Society and Development.

Last year we participated in the summer courses of the UPV/EHU for the fourth year running. Together with the Chairman of Scientific Culture we organised the course ‘Two cultures and beyond: Science, Society and Development.’



3.2



SCIENTIFIC BREAKFASTS

The “Scientific breakfasts” are an initiative which aims to bring the research activity carried out in the Basque Country closer and disseminate it through direct contact between the media professionals and experts in various fields of knowledge who carry out their work at universities and R&D centres of the Autonomous Regional Community.

In 2013 we held the following scientific breakfasts:

- **Juan Carlos Arango**, expert in neuropsychology. Neuropsychology studies lesions and malfunctions in the central nervous system and their cognitive, psychological, emotional and behavioural effects.
- **Unai Pascual**, expert in environmental economics who investigates the interrelationship between the economy and the environment that has become an essential factor for providing solutions to key issues of our time.
- **Luis Liz-Marzán**, is Director of the CIC biomaGUNE (Biomaterials Research Centre) and an expert in nanotechnology. The study of particles of up to a millionth of a millimetre offers new ways to diagnose and treat diseases and allows for the development of tissue regeneration techniques, new drugs or the development of “personalised medicine” and remote treatment.
- **Mª Cruz Rodríguez Oroz**, is a specialist of international reknown in Parkinson's disease, on which at present she is focusing her research efforts, as well as on the dementias and impulsivity disorders associated with this disease.
- **Francesca Tinti**, has wide experience in cartularies, collections of medieval documents copied by monks or other ecclesiastics and together with other UPV/EHU researchers she has developed the digital edition of the “Becerro Galicano” of San Millan de la Cogolla www.ehu.es/galicano, a fascinating cartulary dating from the late 12th century which has resulted in an international work team.



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EMPLOYMENT PORTAL

SCIENCE CAREERS.EU

The website promoted by Ikerbasque brings together job offers from more than 42 scientific organisations in Euskadi

In 2010, Ikerbasque launched the sciencecareers.eu portal which has already become a reference for research staff all over the world who choose the Basque Country to develop their professional career.

ScienceCareers is a useful tool both for researchers and for research institutions. For the former it provides a unique venue from where they can access all professional opportunities offered by the Basque System of Science and Technology, including a notification service which occasionally gives information on any vacancies which arise. For universities, technology and research centres in the Basque Country they are given a space where their employment vacancies are given greater publicity. This aspect is fundamental in such an internationalised and competitive era such as the one characterising scientific research.

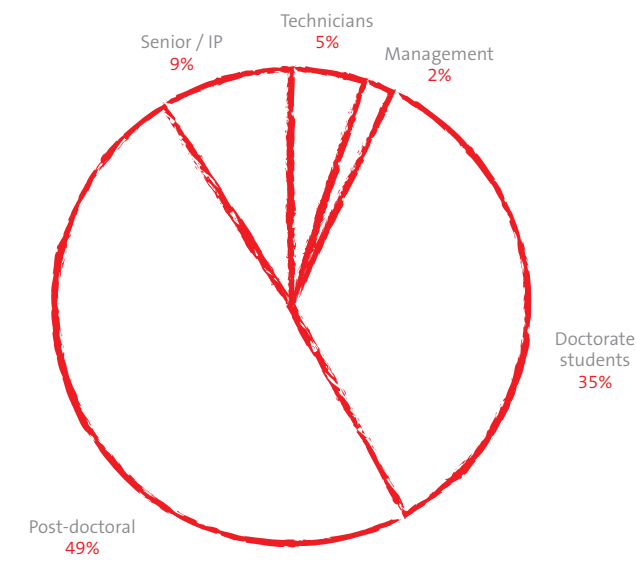
There are other web services which offer the same features as ScienceCareers.eu, however the advantage of this portal

is that it is based on the centralisation of data thus enabling those who publish employment vacancies to have these more widely disseminated by virtue of automatically exporting information to other international portals such as Euraxess (the European portal managed by the European Commission) and NatureJobs (from the prestigious Nature journal), in such a way that the Basque centres that publish their vacancies in ScienceCareers do not have to double their efforts by publishing the same information in various portals.

The website currently holds more than 165 job offers from 42 institutions or research groups belonging to the Basque Science, Technology and Innovation Network.

Throughout 2013, eleven research groups joined the system and the number of calls published exceeded half a hundred.

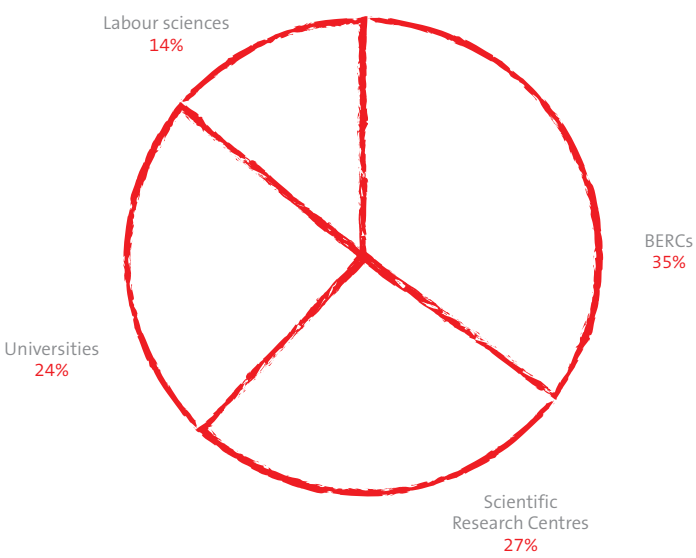
Classification of positions by their category or functional area:



Classification of positions by their Historical Territory:



Classification of positions by Institution:





05

BASQUE SCIENCE OBSERVATORY

Basque Observatory of Science and Technology

IKERBOOST

Ikerbasque manages the Basque Observatory of Science and Technology, a tool for monitoring the advance of science and technology in Euskadi.



Ikerbasque developed and launched the Observatory in 2010, with a base of more than 50 synthetic indicators regarding the main aspects related to research activity such as the research population, research results, research incentives, technological transfer, projects and training of researchers.

A new version of the "Report on Science in the Basque Country" was published in 2013. This document featured the main result indicators in scientific and research production in our area over a period ranging from 2004-2012, which therefore reflects the most recent plans in science, technology and innovation which have been implemented in Euskadi.

Some of the most noteworthy data are:

- 1

Scientific production in the Basque Country surpassed the barrier of 4,000 indexed publications in 2012, which means that the number of publications has doubled from 2004 to present.
- 2

The Basque system of science has diversified with the creation and enhancing of new agents. The BERCs and CICs already cater for more than 15% of the articles published in the Basque Country.
- 3

In 2011 the number of researchers in the Basque Country remained stable at over 11,000 people.
- 4

Whereas the ratio of men and women who defend doctoral theses is similar, the number of women who consolidate their research careers is lower.
- 5

Euskadi continues to have a science system based on consolidated fields of science (mainly medicine, physics, chemistry and materials science). In recent years it has branched out to other areas: Business, Psychology, Engineering, Chemical Engineering and Social Sciences.
- 6

Euskadi is among the autonomous regional communities with the greatest inventive capacity. With regard to patents per million inhabitants, it is the fourth autonomous regional community, only behind Navarre, Aragon and Madrid, with a number of patents that is virtually the same as that of the third (Madrid).

Figure 1 / Evolution of the scientific output in Euskadi:

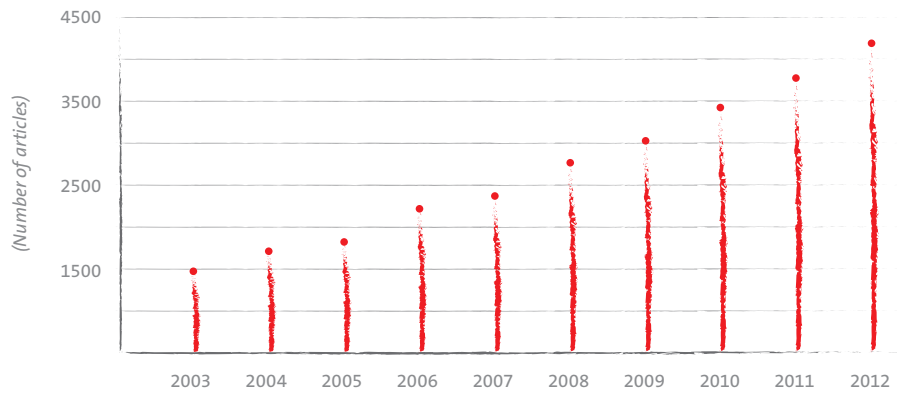


Figure 2 / Researchers per thousand people working in different states, areas of the European Union (EU) and Euskadi.

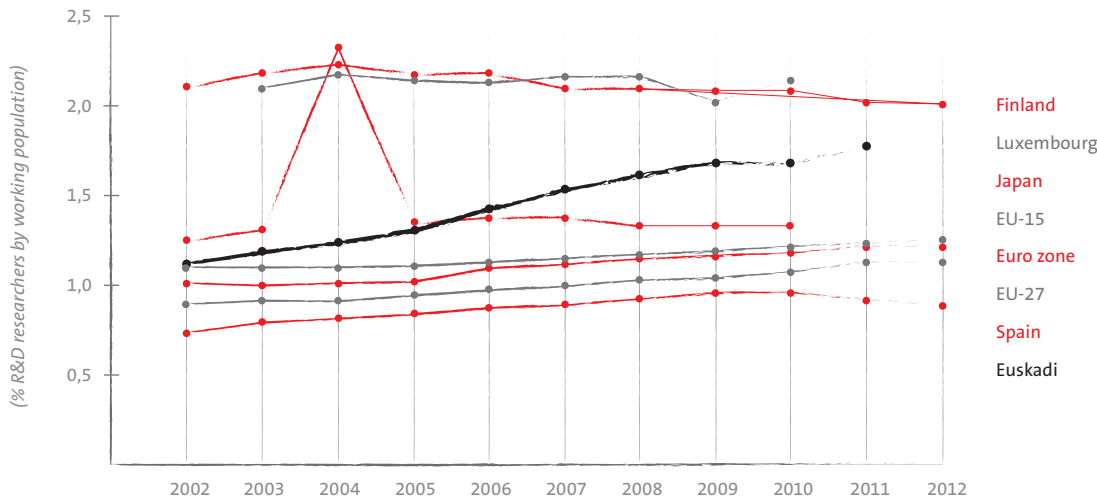


Figure 3 / Specialisation in Euskadi:

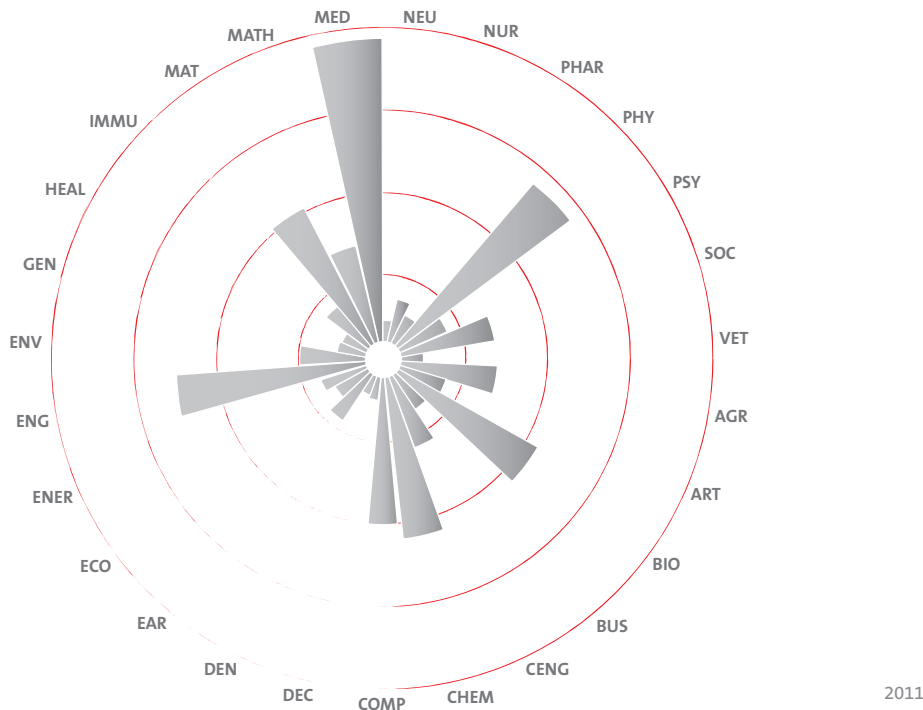
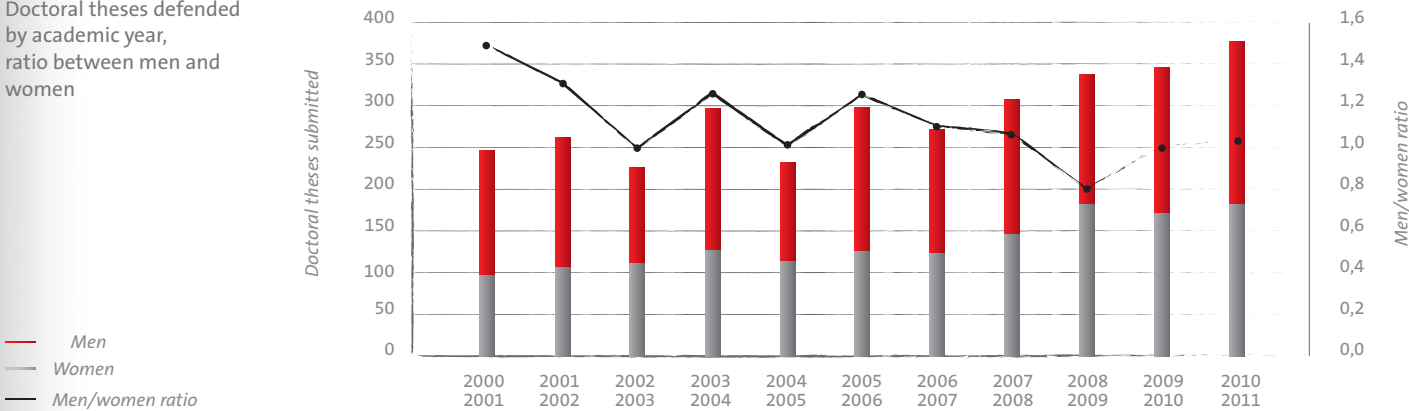


Figure 4 / Doctoral theses defended by academic year, ratio between men and women





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WORKSHOPS

WORKSHOPS

Twice a year the “Ikerbasque Workshops” work sessions are held with a twofold purpose. On the one hand, the objective is to create a space where the researchers can share personal and professional experiences, and, on the other, to create a network amongst the researchers which enables boosting knowledge transfer.

San Telmo Museum
Donostia-San Sebastián

On June 10, we held the 11th Workshop at the San Telmo Museum. In the meeting we had a brainstorming session with the Ikerbasque researchers, with the aim of advancing in the development of the new 2014-2017 strategic plan.



University of Deusto
Bilbao

On December 18 we held a meeting at the University of Deusto, in which both the Ikerbasque researchers and also their families participated. On this occasion, the Councillor of Education, Language Policy and Culture and the President of Ikerbasque, Cristina Uriarte, had the opportunity to explain the strategic plan that had been approved on that same day.



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PUBLICATIONS

PUBLICATIONS

Year 2013.

These are the Ikerbasque researchers who published in 2013:

ARTICLES

ECONOMICS AND SOCIAL SCIENCES

Anil Markandya
Annick Laruelle
Arthur Samuel
Daniel Innerarity
Daniele Conversi
Dirk Rübbelke
Durk Gorter
Ferdinando Villa
Gonzalo Bacigalupe
Ignacio Palacios Huerta
Javier Echeverría
Manuel Carreiras
Nagore Iriberrí
Noemi Navarro
Ulf-Dietrich Reips
Unai Pascual

EXPERIMENTAL SCIENCES

Abel de Cozar
Aitor Hierro Ayuela
Alejandro Müller
Alexander Bittner
Amaury Lendasse
Andreas Heidenreich
Andrey Chuvilin
Arantzazu García
Arkady Zhukov
Arkaitz Carracedo
Aurelio Mateo Alonso
Daniel Marino
David Casanova
David Mecerreyes
Dmitri Sokolovski
Emilio Artacho Cortés
Enrike Zuazua
Enrique Solano
Eugene Krasovskii
Eugene Sherman
Felix Casanova
Geza Tóth
Gunar Schnell
Hartmut Luecke
Humberto González Díaz
Igor Bandos
Ilya Tokatly
Inma Estévez
Ivo Souza
Javier Gorosabel
Jean-Bernard Bru

Jens Siewert
José Ignacio Pascual Chico
José Juan Blanco Pillado
José Luis Zugaza
José Pomposo
Jose Vilar
Juan Anguita
Juan Encinas
Juan Mareque Rivas
Kostyantyn Gusliyenko
Lian-Ao Wu
Lucia Vitali
Luis Hueso
Luis Liz-Marzán
Luz Boyero
M^a Iciar Martínez Galarza
Marcelo Guerin
Marek Grzelczak
Mariam Bouhmadi
Mario Piris
Martina Corso
Mato Knez
Michele Modugno
Mónica Carril
Oleksiy Nikitin
Paolo Vavassori
Peicheng Zhu
Pepa Cabrera
Radmila Tomovska
Rafael Morales Arboleya
Rainer Hillenbrand
Raúl Pérez Jiménez
Roberto D'Agosta
Ronen Zangi
Sergey Korotov
Sergio Faria
Slawomir Grabowski
Stefan Kurth
Thomas Broadhurst
Thomas Frederiksen
Vadim Frolov
Vadim Soloshonok
Vitaly Golovach
Volodymyr Chernenko
Vyacheslav Silkin
Xabier Contreras
Yury Rakovich
Zoraida Freixa

HUMANITIES

Agustin Vicente
Aitor Anduaga
Eros Corazza
Clara Martí
Esther Torrego
Ezequiel Di Paolo
Francesca Tinti
Jaume Navarro
Javier García Iñáñez

John Walton
Maria José Iriarte Chiapusso
Michael Marder

MEDICAL AND LIFE SCIENCES

Alexei Verkhatsky
Amanda Sierra Saavedra
Ander Matheu
Charles Lawrie
Florence Perrin
Francisco Blanco
Francisco Borrego
Iraide Alloza
Jesús Bañales
Jesús Cortés
Joaquín Castilla
Jose Rodriguez Arellano
Juan Carlos Arango Lasprilla
Juan Falcon-Perez
Koen Vandenbroeck
Kornelius Zeth
Mari Cruz Oroz
Nicola Abrescia
Rafael Pulido
Sean Connell
Shira Knafo
Ugo Mayor
Vladimir Kaberdin
Xabier Contreras

TECHNICAL AND ENGINEERING SCIENCES

Andrey Kazansky
Christian Blum
Daniel Erro
Darrell Conklin
David Pardo
Fadi Dornaika
Franck Girot
Gianni Pagnini
Hubert Chen
Joel Villatoro
Lourdes Basabe
Marc Neumann
Martin Cooke
Mustafa Tutar
Susana Rodríguez-Couto
Thomas Schäfer
Urtzi Ayesta

BOOKS AND CHAPTERS

ECONOMICS AND SOCIAL SCIENCES

Anil Markandya
Annick Laruelle

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Nicola Abrescia
Paola Fucini
Susana Cristóbal



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