

Mr. Lehendakari, President of the Basque Parliament, President of Gipuzkoa's Regional Council, Mayor, Ministers, University Rectors, authorities, friends, colleagues, good morning everybody and thank you very much for joining us here today for the celebration of the 10th anniversary of the Cooperative Research Center nanoGUNE.

It was exactly ten years ago, on January 30th 2009, that we celebrated the opening of nanoGUNE after two-and-a-half years of intensive work. Over that time we had built a cutting-edge infrastructure and, at the same time, we had attracted top-class researchers from all over the world. We received and we are still receiving considerable resources and extremely valuable advice. We made a bet, boldly and forward looking. Our authorities have always believed that the development of the Basque Country must go hand in hand with innovation. NanoGUNE was created as a result. NanoGUNE was created as a result of the unwavering commitment of the Basque Government to leading-edge research and innovation. In the course of 10 years we have made a good progress both in research and in the translation of that research into society.

It is rare to have days such as today; I would therefore like to take a few minutes to give you a brief overview of the creation and evolution of nanoGUNE, as I believe that only an understanding of where we come from will allow us to understand who we are.

- It all started back in 2005. While I was at the University of Cambridge, a proposal was made to me. I was given the opportunity to launch the design of a new research center that would be focused on nanoscience. The idea came in the framework of the strategy set up by the then Department of Industry, Trade, and Tourism of the Basque Government and the initiative of the Donostia International Physics Center led by Pedro Miguel Etxenike.
- One year later, nanoGUNE was created thanks to the impulse of the Basque Government and the support of our founding partners: the Donostia International Physics Center, the Tecnalia Corporation, the IK4 Research Alliance, the University of the Basque Country, and the Regional Council of Gipuzkoa. That very day I was appointed Director-General. You placed your trust in me and I would like to thank you for that. I would also like to thank CAF, Petronor, and Ikor, as they are now our partners as well.
- Also at the beginning of 2006, thanks to the generous effort of various research groups at the Donostia International Physics Center, the Polymat Institute of the University of the Basque Country, Tecnalia, and IK4, we were able to submit, in a record time, a proposal in the first call of the Consolider-Ingenio program that had been set up by the then Spanish Ministry of Education and Science, a program oriented to the funding of consolidated research groups that were

expected to lead Spanish science in a given field. Our proposal was selected for funding and nanoGUNE adopted the name CIC nanoGUNE Consolider, thus becoming the first research center to receive such recognition.

- On September 1st 2006, I started my work as nanoGUNE's director-general, without totally abandoning my duties at the University. We had our first headquarters at Miramon, at Gipuzkoa's Technological Park. We would leave the Park, but we still keep close links with it. As a matter of fact, Graphenea, the first company we launched here at nanoGUNE, is now based there.
- And that very year we put together our International Advisory Committee, which counted with the participation, among others, of the chair Sir John Pendry (here with us today) and the Nobel-prize laureates Jean-Marie Lehn (also here with us today) and Heini Rohrer.
- The following year we started to build our final headquarters here at Ibaeta, thanks to the then Rector and Gipuzkoa's Vice-Rector of the University of the Basque Country. We took on the challenge to build the new headquarters with a goal in mind: to guarantee the necessary working conditions for the equipment that would be needed to carry out world-class nanoscience research. As a matter of fact, in this building we would perform highly sensitive experiments, at the nanoscale (the scale of atoms and molecules), which need to be free from external perturbations. As we knew that sophisticated schemes needed to be developed in order to avoid vibrations, noise, electromagnetic radiation, and dirt, we decided to go for state-of-the-art architectural and engineering solutions. Hence, we put together a top-class team composed of local and international architects and engineers. This unique building, inaugurated exactly 10 years ago, is the result of that huge effort.
- Our first five research groups were already up and running by the time the building was opened. We succeeded in putting together five research groups, as many as we had planned for the first stage of our activity. Now we have ten groups led by 12 excellent scientists from all over the world who were attracted by the expectation generated by the launch of a promising multi-disciplinary center and decided to choose our project leaving behind other positions and declining offers in other parts of the world. You trusted our project, and I am grateful for that: Andreas, Paolo, Rainer, Alex, Raul, Luis, Felix, Andrey, Emilio, Mato, Nacho, and Andreas, thank you all for staying here with us.

Now we have a solid team. Our people have been doing an excellent job. Without the effort and good work of all our employees (a few of them permanent staff and many others joining us temporarily), we would not have been able to get that far.

We were entrusted with a mission. To carry out world-class nanoscience research for the competitive growth of the Basque Country. Ten years later, we can proudly say that we have more than fulfilled that mission. Many are the researchers that have passed through here, some of them now working at Technology Centers and companies in the Basque Country. We have been publishing in the very best journals research papers that have enjoyed and are still enjoying a significant international impact. We have been recognized as a Maria de Maeztu center of excellence, a recognition given to centers that stand out for the international impact of their research activity. And all this has endowed us with a privileged positioning that has allowed us to address technology transfer and, in particular, the creation of new technology-based companies in extremely competitive areas like that of graphene (a nanomaterial consisting of one single layer of carbon atoms) in which we are world leaders. We also have patents, some of them being exploited already. We work together with other research groups in the Basque Country. And many companies have been profiting from our research and our services. Now I would like to give you some figures.

We have been lucky to attract twelve senior scientists (one research director, Andreas, and eleven Ikerbasque Research Professors), worldwide leaders in their fields, now leading a research team composed of 100 researchers (most of them rotating PhD students and post-docs) coming from 25 different countries worldwide. We are 110 altogether. NanoGUNE is a small center and we would like to keep it that way. But many are the individuals that have passed through our laboratories. During these 10 years, about 600 people (from 49 different countries) have worked at our laboratories: PhD students, post-doctoral researchers, Ikerbasque and Gipuzkoa Fellows, undergraduates, and many-many guest researchers coming from other research centers and universities across the world with the aim of working with us for a given period of time.

We have been publishing in the very best research journals: *Science*, *Nature*, and many others. During these ten years we have published more than 800 papers that have been cited internationally about 17,000 times. Quite extraordinary for a small center like nanoGUNE in such a short period of time. These papers have been published in collaboration with more than 500 universities and research institutions, including the University of the Basque Country, Mondragon University, other Cooperative Research

Centers and BERCs, and several Technology Centers. And these papers (most of them led by us) have been published in collaboration with more than 2 000 researchers worldwide.

During these ten years, 39 PhD students (most of them enrolled at the University of the Basque Country) have completed their PhD thesis here at nanoGUNE, most of them now pursuing their career somewhere else: many in academia and some at technology centers and industry here in the Basque Country and worldwide. We still have more than 30 PhD students that are now working on their PhD thesis here at nanoGUNE. And many others are conducting their bachelor or master thesis under our supervision.

We also have patents. Fourteen patents in total. Nine of them are already being exploited through licences in the following areas: Advanced materials, Medical diagnosis, and Scientific equipment.

We have collaborated with several companies at different levels. The giant Intel, for example, is funding part of our research in the field of spintronics, thereby highlighting the level of excellence of our ongoing research. We also provide short-term services to important firms like Thermo Fisher and the Basque company Fagor Automation. These are simply a few examples, as we are also collaborating with many other companies in the fields of Advanced materials, Semiconductors, Health, Cosmetics, and Scientific equipment.

And we have created five technology-based companies and we have participated in the creation of a sixth company: Biotech Foods.

Our first start-up company, Graphenea, we founded in 2010, hardly a year after the opening of nanoGUNE, with the mission of producing and commercializing high-quality wafers of graphene, a nanomaterial which we master as worldwide leaders in the field. After five intense years of launching Graphenea, in 2015 the company started to fly alone and last year (8 years after its foundation) it moved from our headquarters to new laboratories at Gipuzkoa's Technological Park in Miramon. At this moment, not only nanoGUNE is still a worldwide leader in graphene's research, but Graphenea is also a worldwide leader in graphene's production and commercialization with a market share that is close to 30%.

In 2014 we founded three more technology-based companies. Simune Atomistics was launched as a joint venture with four leading scientists with the mission of commercializing atomic-scale simulations and tools. Ctech-nano, selected recently by the program Bind 4.0 (an industry 4.0 accelerator program in the Basque Country), was launched as a joint venture with two local companies (AVS and Cadinox) with the mission of providing Atomic Layer Deposition custom coating services and specific coating tools. And Evolgene was launched in the framework of an Idea supported by the Entrepreneurs Fund of Repsol for

the reconstruction of ancestral enzymes with a wide range of industrial applications. Simune and Ctech-nano are both nearly in a position to fly alone and we are now focusing our efforts in the launching of Evolgene and also Prospero Biosciences, our 5th spin-off company, which was founded more recently in the framework of a collaboration with the University of Hamburg.

And in order to do all this we have required funding, mainly public but also private to some extent. After a 50-million-euro investment in the construction of the building and the acquisition of scientific equipment, right now for every euro we receive from the Basque Government (of vital importance in order to be able to keep doing world-class research) we are able to bring other euro from competitive sources outside the Basque Country. We receive one million euros per year from the Spanish administration, one-and-a-half million euros from European calls, and nearly one million euros of private funding.

The move of the Basque Government, more than 10 years ago, with the launch of a center like nanoGUNE, has paid off, although we still have a long way to go. We are convinced that we must remain committed to combining fundamental research (that kind of research whose applications are still unknown) with specific activities of industrial research and experimental development oriented to exploit at any time the opportunities that can be founded along the way. That is precisely what we have been doing with Graphenea, Simune, Ctech-nano, Evolgene, and Prospero, and that is what we will do in the future.

We should build on that. At the top. But in order to stay there, in order to keep our trend, if we do not want to miss the boat, we need to keep doing a kind of cutting-edge research that would take us to uncharted territories, still responding at all times to our commitment to industry: the industry of the present and the industry of the future. This is the big challenge of the small.