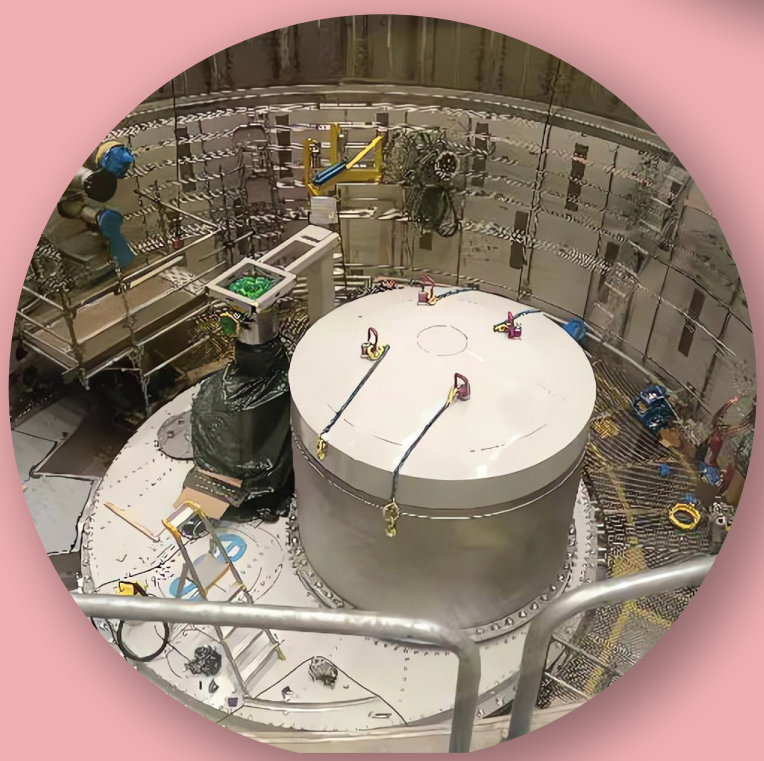
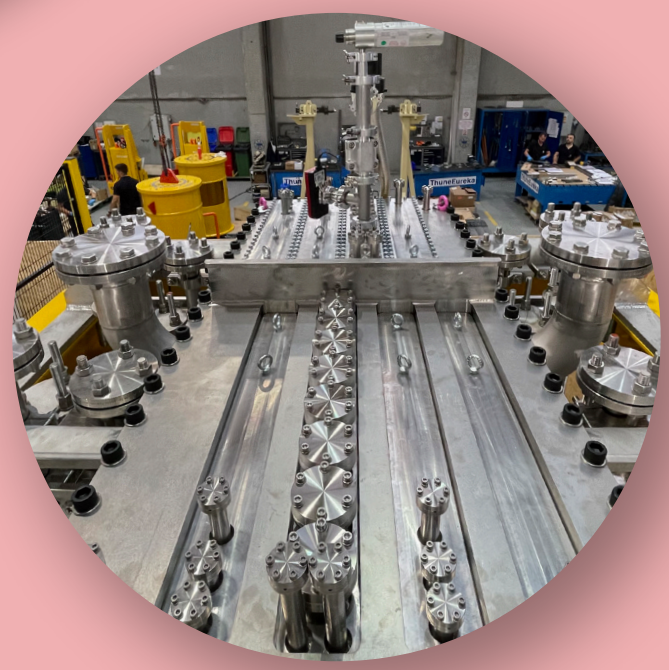
ESS - BILBAO. THE SPANISH CONTRIBUTION TO EUROPEAN RESEARCH EXCELLENCE

ESS bilbao

newsletter

OCTOBER 2024





summary

Angel Ibarra

Director of the IFMIF-DONES España Consortium

MARIO PÉREZ
Executive Director

Fulfilling our commitments and moving forward with new projects

This year 2024 has been very successful and fruitful for ESS Bilbao. At the beginning of the year, we delivered the final components for the ESS Target Station, the heart of the facility. This means a great milestone for the entire Target team after years of challenges in terms of engineering and manufacturing. All the main components are successfully in place.

We also want to highlight in this issue our participation in the construction of IFMIF-DONES, STUMM Proton project, a system that will be installed in DONES before the irradiation of their materials. We are happy to spread our collaboration agreements with organizations like DONES. This feature is completed with an interview of Angel Ibarra, General Director of IFMIF-DONES.

We are also very excited to welcome on board our new responsible of the Finance Department, Begoña Asumendi. The person in charge of successfully carrying out the implementation of finance and administrative tasks.

Likewise, we have dedicated a space for an interview with Thomas Gutberlet, a senior scientist and well-known expert in the research with neutron techniques. With extensive experience in different areas of the neutron scattering research.

I'm happy to share the new edition of ImoH24 2nd International Meeting on Opportunities and Challenges for HICANS , this event will be held this October in Bilbao.

Hope you all find t he content of t his issue of interest and that you enjoy reading it.

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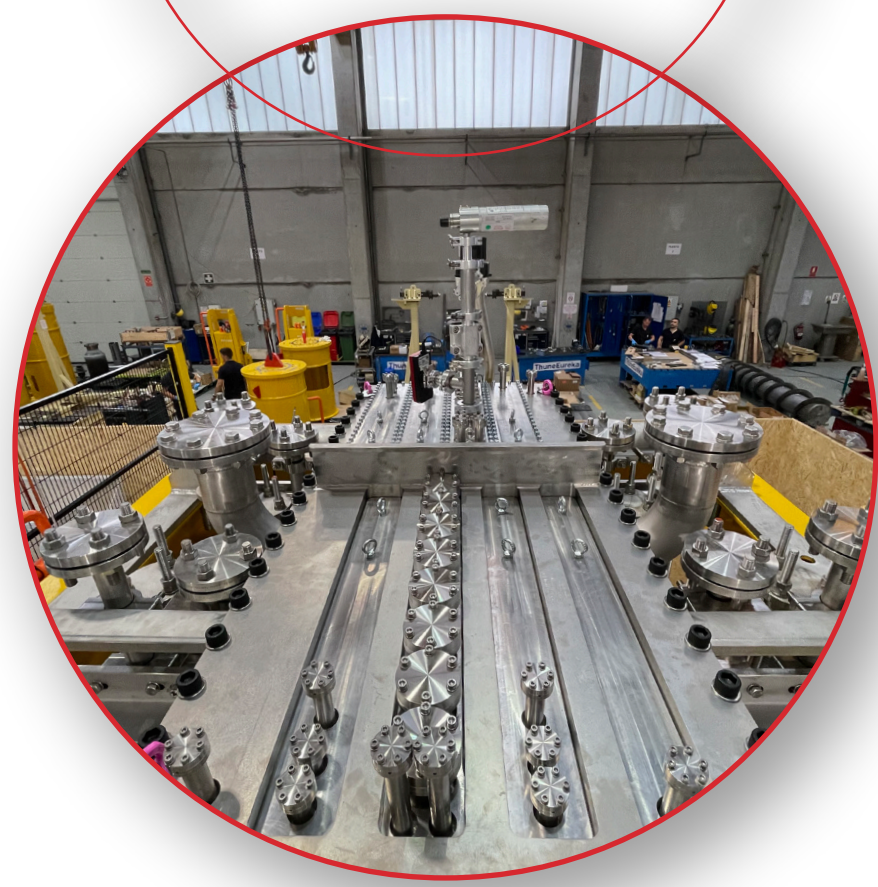


Beyond the state of the art, ESS Bilbao successfully concludes the heart of the European Spallation Source

The heart of this cutting-edge scientific facility that is unique in Europe has a Spanish essence

Click on the image to see the video

More than 20 people from ESS Bilbao have participated in the execution of the global project of the Target

In 1783 nothing made Spanish researchers at the Swedish University of Uppsala think that their discoveries were going to be so transcendental in the scientific history of the two countries, Spain and Sweden. When the D'Elhuyar brothers named the number 74 on the periodic table, tungsten, it was impossible to imagine how this element was going to become the essential component for large-scale neutron production at a scientific facility built in Lund, Sweden, the European Spallation Source.

History has its whims and three centuries after the Spaniards discovered Tungsten, a team of 20 nuclear engineers from ESS Bilbao, have been responsible for designing, manufacturing and testing the core of the Swedish scientific facility for more than 8 years. Led by Fernando Sordo, Head Target division, they took the challenge of carrying out the design, with complex calculations and simulations, transferring these to drawings, and, finally, beginning the search for industrial partners to manufacture all the components of what is today the Target Station of the European Spallation Neutron Source.

Being part of the design, manufacture and testing of the spallation target of the most relevant scientific infrastructure currently in Europe has validated ESS Bilbao as an international benchmark in the field of accelerator and target technologies. The challenge we took on at the time is clearly demonstrated today thanks to the courage, effort and teamwork carried out.

Fernando Sordo,
Head of Target division at ESS Bilbao

The core of the facility

Spallation neutron sources are devices designed to produce neutrons from spallation nuclear reactions. To produce this kind of reactions, protons (H+ particles) must be accelerated using electromagnetic fields until they get a huge amount of kinetic energy or speed close to light velocity. In that moment, protons are led to impact on a nucleus of a heavy atom (generally, mercury, lead or tungsten) producing what is known as spallation reaction

The place where the reaction is produced it is known as spallation Target and it is considered the neutron source. These Targets are complex devices, from an engineering point of view, where a large amount of heat is deposited on the spallation material. In some cases, it is note that the heat density in the spallation target can be higher than fuel bars inside a nuclear power reactor, therefore the design of spallation Target is a real engineering challenge. The ESS target is one of these cases.

The engineering challenge is unprecedented in Spain due to the demanding requirements in terms of manufacturing and safety. All the components of the Target must comply with nuclear engineering regulations, as it is the place where the spallation phenomenon that gives rise to the production of neutrons occurs.

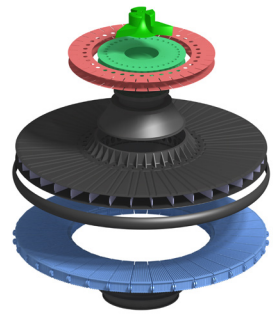
ESS Bilbao's contribution to the ESS Target has been fundamental thanks also to our industrial partners responsible for the manufacturing of this complex engineering system.

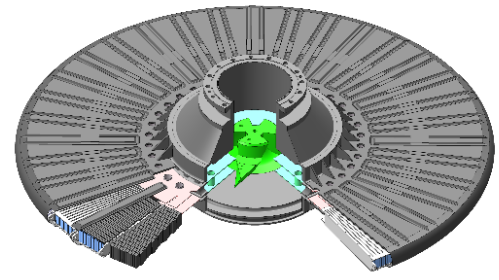
AVS, Nortemecánica, Thuneureka and Cadinox in coordination with the team of engineers of ESS Bilbao have made it possible to successfully complete every one of the deliveries, without their effort and dedication it would not have been possible. This great project positions ESS Bilbao as a promoter of European science, technologically enables all industrial partners to position themselves internationally and will ultimately benefit the entire scientific industry in Spain.

Target System

Target system includes the drive unit, the rotary seal, the shaft and the target wheel. It is the core of the European Spallation Source, where the accelerated proton beams collide with a heavy material, the tungsten, which is inside the wheel and where the neutrons that are used to carry out the scientific experiments come out. The wheel is made up of a succession of tungsten blocks located inside.

It is a component of advanced technology with a vertical structure made up of a powerful motor, an axle over 8 metres long and a wheel of 2,5 meters in diameter on which the accelerated protons collide. This 5tn wheel spins at more than 20rpm and contains 7,000 helium-cooled tungsten bricks inside. The neutrons generated by spallation in the Target are guided to the instruments for carrying out experiments.





The Target project has accounted for more than a third of all our In-kind contribution to the ESS and given its magnitude and complexity in terms of engineering, the work package was divided into different sub-projects.

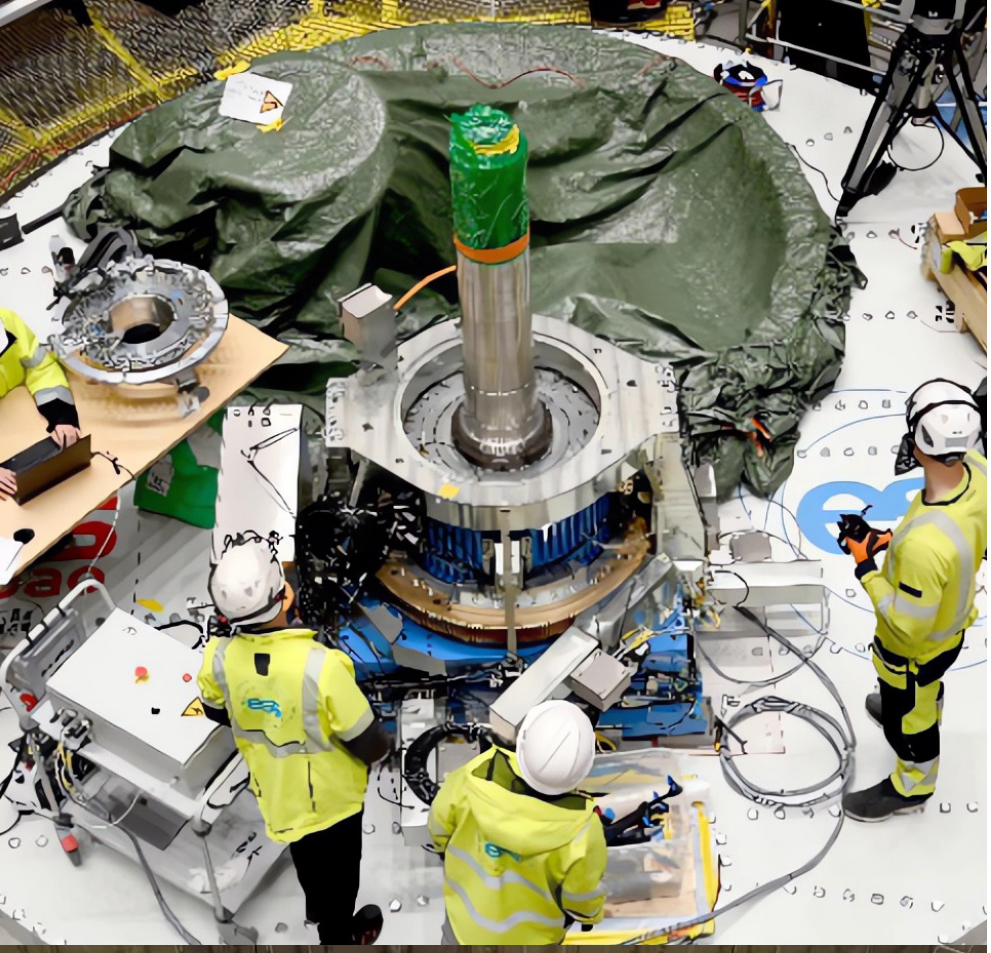
The Monolith vessel

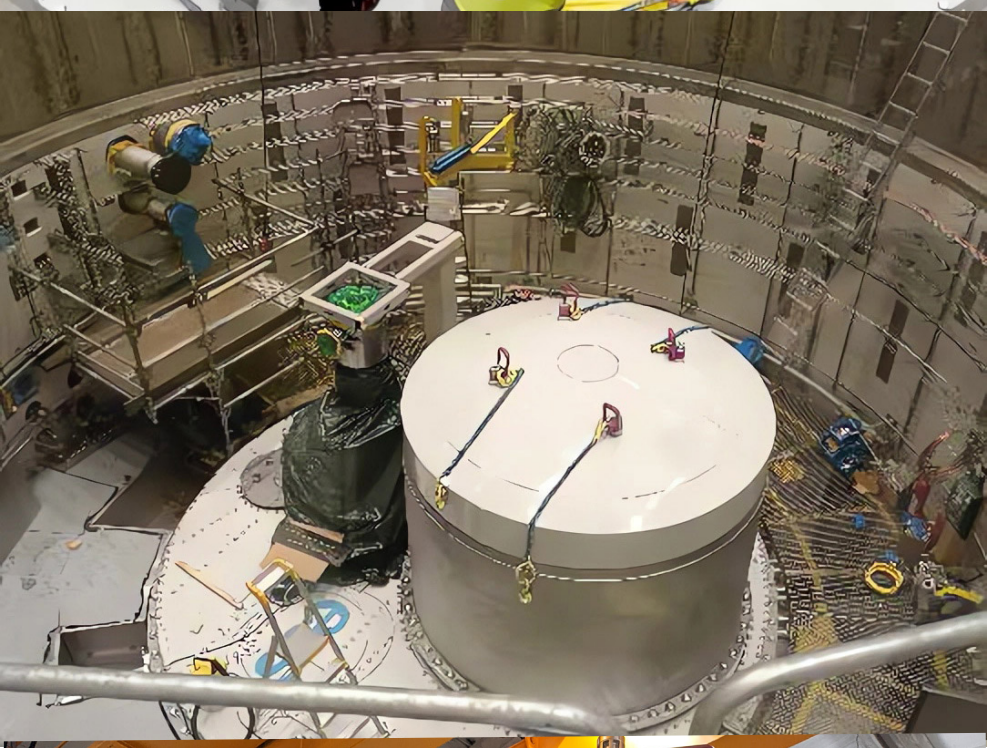
The Monolith vessel houses the Target system, where neutrons for cientific experiments will be generated. Inside this steel container, the rotating target wheel, the moderator and reflector plug, and proton beam instrumentation will be installed. In addition, the vessel will contain 1,000 tonnes of steel, shielding the outside from activated materials and ionizing radiation generated in the process.

Once in operation, a vacuum atmosphere will be maintained inside the immense vessel to isolate the critical parts of the target system from the external environment, and to ensure that the neutrons for research can be guided to the instruments.

One of the latest key milestone has been the construction of the Head of the Vessel, which is one of the major inkind contributions from ESS Bilbao. This component, over 6 meters in diameter and weighing 25 tonnes, has been a significant challenge due to the high precision required.

Window systems are also housed within the Monolith such as the Proton Beam Window (PBW), PBW Port Block & Vessel and Proton Beam Instrumentation Plug (PBIP).





These components allow different atmospheres to be maintained between the accelerator and the target, as well as to house instrumentation for the measurement of the proton beam before impacting the target.

Complex design validation methodology

The complete set of analyses that needs to be accomplished in order to validate the design of a target vessel such as the one for the European Spallation Source , presents major challenges in both individual analyses and the interaction between them.

The analyses performed in this component span completely different areas of the engineering field:

- Particle transport analysis provides the heat sources as well as the radiation damage that materials will suffer during operation.

- Computational fluid dynamics(CFD): a careful and detailed study of the coolant behaviour and its impact on the component´s thermal evolution.

- Finite element Thermal analysis: a slightly less detailed analysis that the one performed with CFD tools that allows a much wider model configuration focusing on the solids and its secondary loads.

- Finite element Mechanical analysis: Combines the results of all the previous analyses to determine whether the design can meet the established mechanical requirements.

- RCC-MRx structural verification: The results from the mechanical analysis are evaluated with appropriate criteria that account for the nuclear nature of the installation.

All these engineering studies belong to their own specific fields and as expected are extremely different from each other, to the point that they sometimes yield conflicting results regarding component design. Therefore, a precise balance must be found to meet all the requirements.

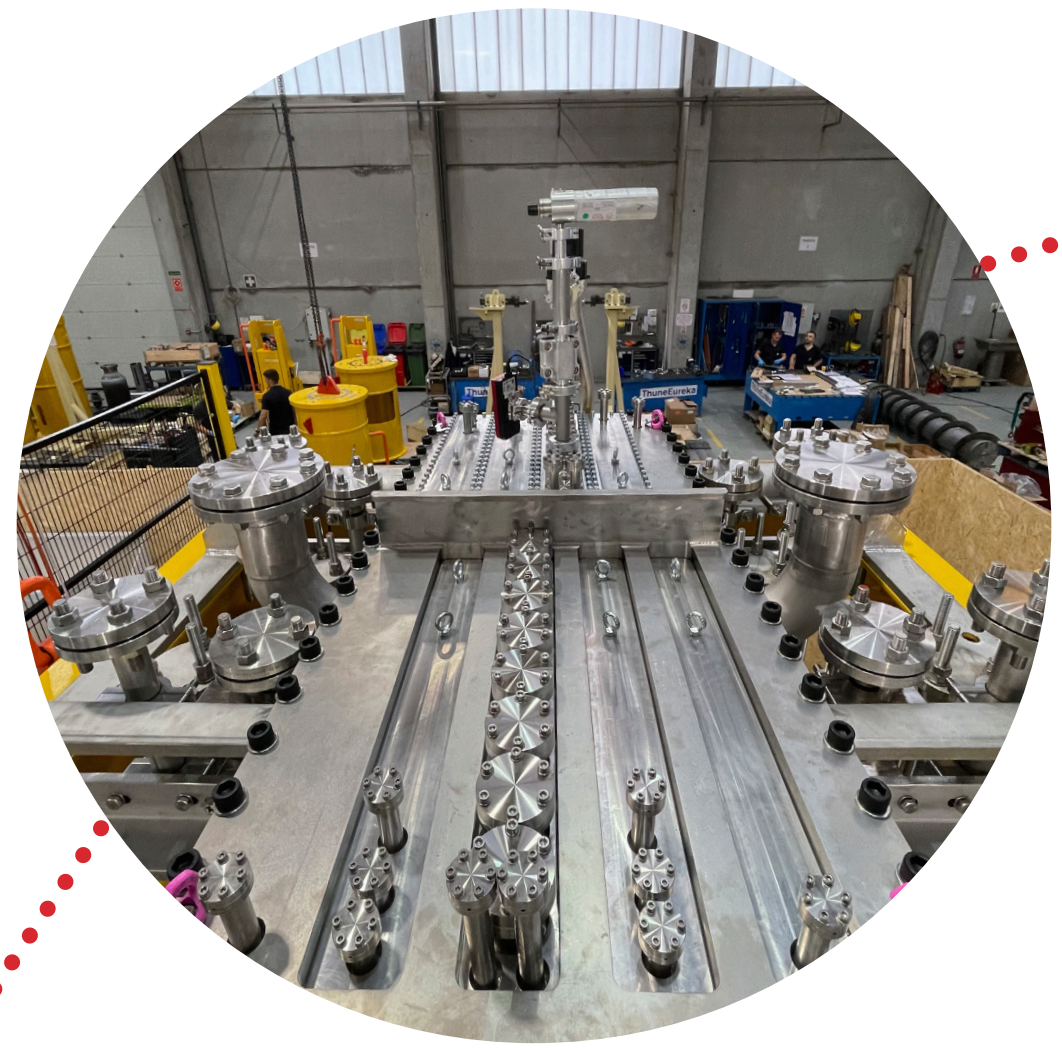
The neutrons emitted from the ESS Target Station will be 100 times brighter than those known so far. As a result, scientists conducting experiments at ESS will be able to penetrate the materials and study their behaviour and dynamics at microscopic scales, enabling the design of new so-called "new generation" materials.

STUMM-Prototype project

ESS Bilbao participates in the construction of IFMIF-DONES

IFMIF-DONES–International Fusion Materials Irradiation Facility-DEMO Oriented Neutron Source will be a Neutron Source designed to test materials intended for use in future fusion reactors. This facility aims to understand the degradation of material properties and components throughout the reactor's operational life. To achieve this goal, three prototypes are being developed; STUMM-Prototype, MuVacAS and Quick Disconnection System.

ESS Bilbao in collaboration with ALTER and Thuneureka, are responsible for developing the first of these prototypes, STUMM-Prototype. This system will be installed in DONES before starting the irradiation of the materials. It will consist of multiple sensors and detectors to diagnose and characterize the neutron and radiation fields to which the material samples will be subjected.



This system will be installed in DONES before starting the irradiation of the materials.

Jorge Aguilar
CFD-Thermomechanical analysts / Design engineer

IFMIF-DONES will be an innovative research infrastructure in which materials to be used in future fusion power plants such as DEMO, a prototype demonstration fusion reactor, will be tested and validated.

The main purpose of the project, led by Jorge Aguilar from the Target division of ESS Bilbao, is to deepen the knowledge of the behavior and performance of sensors and detectors under a wide range of operational conditions, as well as the interactions and distortions that may arise due to their high density distribution. All these aspects will be reflected in an experimental program for the prototype, which will include irradiation campaigns in neutron sources to evaluate the response of these sensors and detectors.

Following this prototyping and testing phase, a final design of the instrumented start-up and monitoring module will be carried out.

Design Challenges

ESS Bilbao is responsible for the thermomechanical design of the vessel, as well as for each of the eight interior rigs where all the sensors are housed to monitor the prototype during testing. The main challenge is accommodating the large number of sensors required, which involves numerous connections for monitoring and ensuring functionality in both vacuum and overpressure configurations.

The design and manufacture of the bottom (container) have been particurlarly challenging. The sensors need to be as close as possible to the neutron source, to ensure that the wall has a thickness of only 2 mm while incorporating eight cavities designed to house the rigs inserted two meters above it.

Additionally, managing the large numbers of connections within the vessel has been another significant challenge. All connections must be routed outside the vessel to the control system, located 35 meters away, to assess the effects of extensive wiring on the signals received by the sensors.

We want to do with machines what the universe does naturally

Angel Ibarra
Director of the IFMIF-DONES España Consortium

There´s been a lot of buzz about Fusion Energy lately. Why is this alternative energy so important?

Among the positive aspects that fusion energy will have when it becomes a reality on earth, and that is why it can be considered such an important alternative, we could highlight that it will be a practically unlimited source of energy, safe and also environmentally friendly, the latter being due firstly to the fact that it is not a source of energy that generates polluting emissions such as greenhouse gases, as is the case with fossil fuel-derived energies.

Furthermore, the life cycle of fusion energy does not produce long-lived radioactive waste that could also be a problem for the environment. It should also be noted that if, in the future, a fusion power plant were to suffer damage due to natural causes, such as an earthquake, or other causes such as armed conflicts or attacks on its integrity, this would not cause associated environmental disasters, as the fusion reaction is not a self-sustaining chain reaction, the conditions for achieving fusion are very demanding and any alteration in the environmental conditions necessary to produce fusion would cause it to stop on its own, to shut down.

It is said to be the energy of the sun and the stars, what is the connection?

We often say that we want to do on earth what the stars do naturally in the universe, that we want to imitate the way our sun produces energy. This is a good way to describe, in a didactic way, what we have been working on internationally for decades.

Fusion energy has been one of mankind's greatest scientific challenges since the 1950s. We say it is the energy of stars, which (like our sun) are kept alight by fusion energy.

In the core of the Sun, hydrogen atoms move at incredible speed. Light atoms of hydrogen fuse into one heavier atom of helium. The reaction releases lots of energy in the form of light and heat. To replicate the fusion reaction, we need two kinds of hydrogen: deuterium and tritium. But because they are both positively charged they tend to repel one another. On the Sun, due to the strong gravity, hydrogen atoms fuse at 15 million°C. On Earth, however, because of the weaker gravitational forces, they need to be heated at temperatures as high as 150 million °C in order to collide.

We want to do with machines what the universe does naturally.

Managing such a unique project in the world as IFMF -DONES entails facing a lot of challenges, what are those main challenges for you?

Indeed, managing an international project such as IFMIF-DONES involves many challenges. In addition to the obvious scientific, technical and technological challenges that we have to face when we want to design a unique infrastructure, there are aspects that are just as relevant, if not more so.

If I had to highlight some of them, I would certainly mention the aspects and complexities derived from the fact that the project is being carried out with the contribution of different countries (in kind contribution), each of them with their own particularities, to which we all have to adapt. And of course, the aspects related to the management of an international team, which has to deal with a large amount of work in a coordinated and organized way.

What kind of applications will this facility serve once in operation?

One of the key challenges in the realization of fusion energy is the development of neutron tolerant materials that can withstand a flux of neutrons up to 14 MeV while maintaining adequate structural and other physical properties over long periods. To test materials, and produce this knowledge, it is therefore necessary to develop a fusion material neutron source with a fusion-like neutron spectrum.

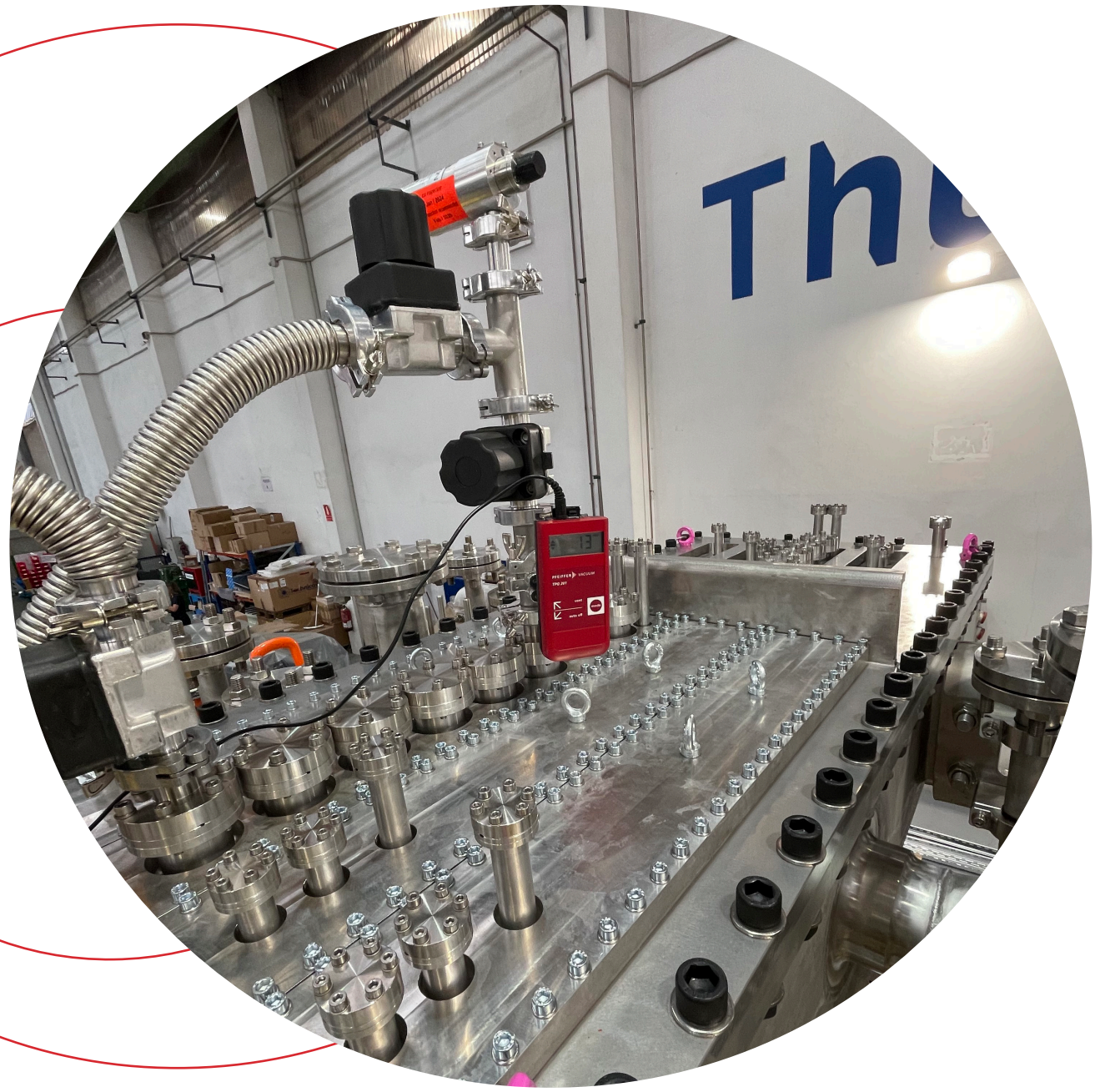
The European Fusion Roadmap (2018) identifies the creation of IFMIF-DONES to address this need. The European IFMIF-DONES Facility is the central element of the DONES Programme, which aims to establish an extensive database on fusion materials.

In addition to this, beyond addressing one of the main challenges for the development of fusion energy on earth, the IFMIF-DONES facility could be also used by other (i.e. non-fusion) scientific communities, such as health-related (mainly for isotopes production), basic physics (astrophysics, solid state physics) or nuclear physics. It can also provide some unique technological-related services for industry.

ESS Bilbao has participated in the development of the STUMM-PROTO, why is this prototype important for the project?

We have been developing engineering design validation activities for the main systems of the project for several years. Among these validation activities, the development of some important prototypes that will allow us to see if what we have currently designed works, undoubtedly stands out.

STUMM-PROTO is the prototype of the STUMM (STart-Up Monitoring Module), which is a module that we will use in IFMIF-DONES to know if the neutron flux we will produce is under the expected parameters. It is undoubtedly a prototype of enormous technological value that will be useful for us to learn and continue improving the design of the infrastructure.



STUMM-PROTON Project

A big science infrastructure such as IFMIF-DONES will undoubtedly have a significant socio-economic impact both locally and in the whole country, do you already have an assessment of this impact?

From my perspective, the most significant impact of a project like this lies not in the scientific advancements, which will manifest in the long term, but in the technological and industrial benefits. The ability to develop an accelerator is crucial as it paves the way for a new generation of accelerators.

Our goal is to construct a one-of-a-kind accelerator with a power output of five megawatts, unmatched by any other. Additionally, it will feature the largest liquid lithium loop ever created.

In essence, the technological demands of conducting these experiments or building this facility are so substantial that they will compel all participants, particularly the industries involved in its construction, to develop new capabilities. This will lead to a significant technological impact. Furthermore, this entire endeavor will take place in Granada, attracting companies interested in both the construction and, more importantly, the operation and maintenance of the facility to this region.

What is the current status of the project? When is the planned timeline for the start of operations?

Since March 2023, the project has been in the construction phase, a phase that we expect to be completed by 2034, when we will begin the operation phase of the infrastructure.

The first auxiliary buildings are already under construction, and we expect to be able to start on-site work on the main building in 2026, and during 2029 the first accelerator systems will start to be installed inside the main building.

We therefore have months and years and years ahead of us that will be full of work and activity at IFMIF-DONES, both for us and for all the collaborators and industry working on the infrastructure.

IMOH24 - 2nd International Meeting on Opportunities and Challenges for HICANS

IMoH2024 will address, from a scientific and business perspective, the following main topics:

- ***State of the Art and Applications of HICANS***
- ***Neutron Science***
- ***Opportunities and challenges of HICANS***

After the successful first edition in 2022, this second meeting will address the latest advances in this promising technology, which will allow large universities and research centres to have their own compact neutron sources, complementary with the large international facilities.

Neutrons are a unique probe to study the structure and dynamics of matter. The advent of High Current Accelerator-driven Neutron Sources (HiCANS) will make access to neutrons easier than today's sources.

With HiCANS, large universities and research centres will be able to host their own neutron sources, gaining independence from large facilities using nuclear reactors or spallation sources.

IMoH2024 will feature a multidisciplinary attendee profile, ranging from researchers and professors from universities and research institutions with a high specialization in neutron sciences and materials, to companies in the Science Industry. And finally, students who want to focus on the knowledge in this field..

ESS Bilbao, BCMaterials, CFM and Ineustar are organizing the International Meeting focus on HICANS. For three days next October, the headquarters of BCMaterials will again host the well-known experts in this field of science. 8 top level invited speakers, 16 oral presentations for abstract submitters and 2 flash sessions with the breaking news on the field of Neutron Scattering. As well as poster exhibition during the 3 days of the conference.

INTERVIEW

Thomas Gutberlet

Senior scientist, Head of the HBS Project Team for the development of high brilliance accelerator-based neutron sources from 2015 to 2024

Research with neutrons techniques are an important tool in the toolbox of science to foster innovation and help to maintain welfare in our societies”

A trained chemist he had studied at the Freie Universität Berlin where he graduated in 1989 and made his PhD in 1995. His first Post Doc position at Leipzig University brought him into contact with neutron scattering and visits at neutron facilities in Berlin, Grenoble, Dubna and Chalk River. He moved on to the Hahn Meitner Institut in Berlin in 1999 where was working in the late ESS project before the decision on construction was done. He continued scientific work exploiting neutrons for biomembrane studies and moved on to the Paul Scherrer Institut in Switzerland in 2002. There he was instrument scientists at the reflectometer AMOR at SINQ till 2007.

The same year he accepted the position as Head of User Office at MLZ in Garching and joined the Jülich Centre for Neutron Sciences. In 2011 he moved back to Berlin as Head of the User Coordination of the BER II neutron facility and the BESSY II synchrotron facility at the Helmholtz Zentrum Berlin. Since 2015 he returned to the Jülich Centre for Neutron Sciences where he took over responsibility for the activities regarding the development of high brilliance accelerator-based neutron sources.

How do you see the neutron landscape in Europe, are you optimistic?

One should always be optimistic. The neutron landscape in Europe is constantly changing. A number of research reactors came to a shut down within the last 20 years, but also new sources started operation as the ISIS second target station, the FRM II and soon the ESS. With the development of high current accelerator-based neutron sources, so called HiCANS, additional new opportunities are at the horizon to offer neutrons in Europe within the next decades. I believe it will become much easier to use neutrons in the future as in the past in Europe.

Will we soon see a HiCANS in any nearby country?

Yes, within the upcoming years HiCANS projects will be realized, probably first as smaller sources as the project in Hungary by the Mirrotron company or at the research center in Dresden-Rossendorf in Germany, but also larger projects as ARGITU project in Bilbao or our HBS project in Jülich.

Areas in which Thomas Gutberlet has focused his research

- neutron scattering at interfaces and biology;
- development of neutron methods and sources;
- structure and dynamics in biological model membrane systems;
- self-assembly of molecules at interfaces and complex biomimetic structures at fluid and solid-liquid interfaces

Being a prolific scientist with several publications, of the 4 areas in which you have focused much of your research, in which of them you have obtained the most satisfactory results?

In all areas I had the pleasure to have very satisfactory results. A common link in all were the neutrons which allowed to tackle nearly any problems regarding the structure or dynamic of the systems investigated. E.g. to study the interaction of peptides with model membranes using neutron diffraction and neutron reflectometry could reveal the way how a specific peptide is embedded and interacting with the biological membrane. To shine some light on how hydration effects the motion and dynamic behaviour of biomembranes was another highly interesting study. As having been engaged in the ESS project and helping to shape the reports and science case for the ESS project to make it reality was another inspiring activity as well as the development of the HBS projects over the last years.

During a period, you were a user coordinator in large facilities (MLZ, HZB), how did you deal with this position further away from the purest research?

For me I never saw this position as away from research. To organize the access process for colleagues at these neutron and photon facilities and to secure a fair and scientific driven beamtime allocation is very demanding and requires a broad understanding and communication with many scientists from many different fields. I have learned a lot during this time in particular in being involved in scientific fields far off from my personal interest e.g. engineering issues or particle physics. With an open mind and engaged colleagues I would not like to miss the experience.

Throughout your career you will have had to handle difficult situations, which one would you highlight? How did you solve it?

Probably a very difficult situation where when the closure of the BER II research reactor was announced and one had to organize a declined user service at the facility and to keep all colleagues engaged to offer the user community a successful beam time till the very end. A similar experience has been the stop of the ESS project in 2001 and a long waiting period before the project was revived and decided to be build in Sweden. I changed in this time my direction and became an instrument scientist at SINQ in Switzerland opening new fields of interest for me and a much deeper understanding of neutron experiments.

What has been the most important challenge you have had to face?

It was always the decision of a new opportunity. Each time a new opportunity was accompanied with changes in personal life, changing places, new colleagues and new challenges. But even when some idea did not work it opened new opportunities and a new experience did move forward.

How do you stay up to date on all the trends and advances in neutron science?

Communicate with your colleagues. It is never possible to be a qualified expert everywhere but talking to colleagues and following their experience does help a lot to get an idea and an overview of new developments and perspectives.

Would you encourage STEAM students to pursue research in neutron sciences?

I would always encourage a student to follow its interests. Neutron research is very broad and can be useful in nearly all areas of science and research, so to have an eye also on neutron research can be useful, helpful and an additional perspective for the work one would like to do. Research is a journey and if one wants to make it one should be prepared for a lot of surprises.

How would you explain in an informative way the importance of research with neutron techniques for the Society?

As said before, neutrons can be useful in nearly all areas of science and research. Due to its unique properties - mass, magnetic moment, penetration depth - neutrons allow a large variety of insights into the behaviour of materials and matter. By this, neutrons are an important tool in the toolbox of science to foster innovation and help to maintain welfare in our societies. Neutrons are a basic component of the atom and we have to know what neutrons are and what they can tell us about our world.

INTERVIEW **Begoña Asumendi,** *a new face in our Finance Department*

Always try to give the best version of myself

How would you rate this first year that you have been head of the Financial Division of the ESS Bilbao Consortium?

I can say that during the initial period at ESS Bilbao my assessment is very positive. At first, like any relevant change, I felt a bit dizzy. After 18 years as a Controller in the same company, facing this opportunity for change meant leaving my "comfort zone", which was a great personal challenge and a commitment at a professional level. Although I want to emphasize that from the first moment, I have felt very welcome by everyone. Therefore, I face the future with enthusiasm.

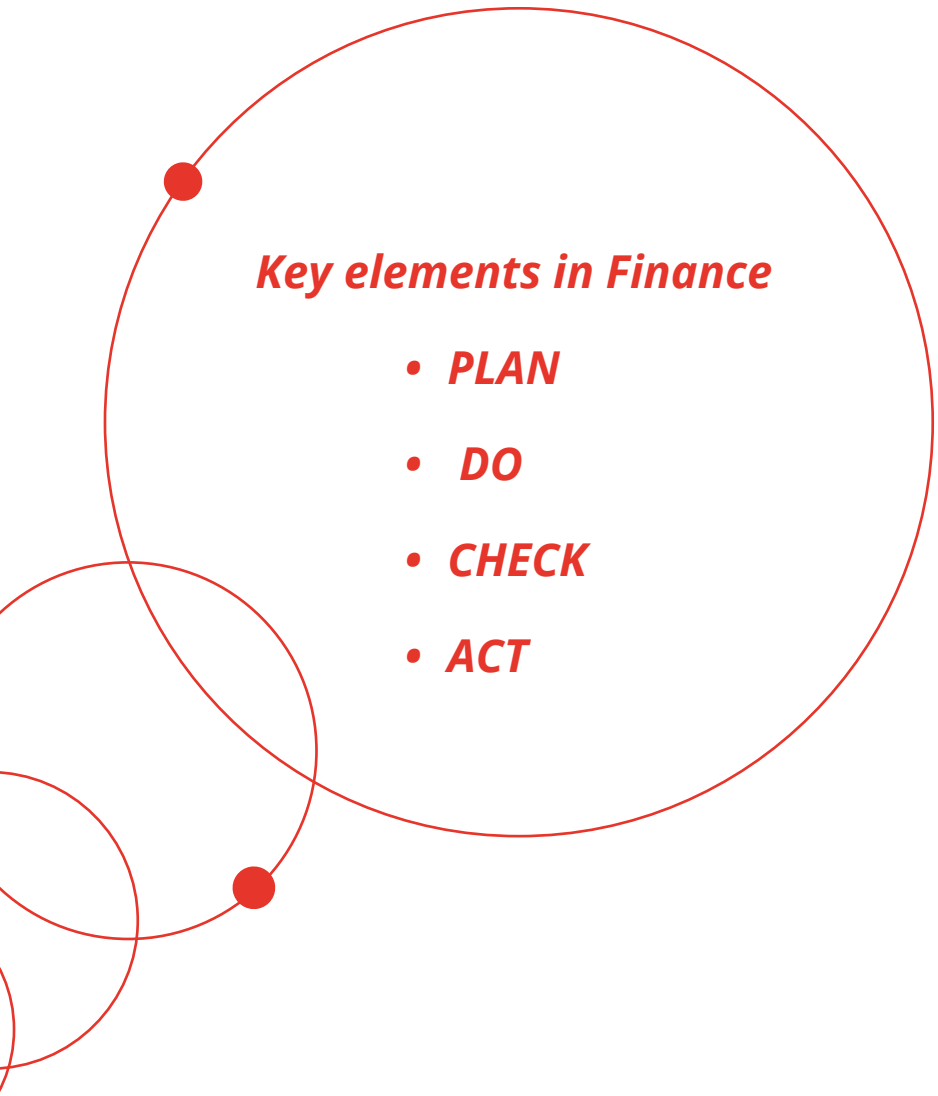
What would you say has been the most important challenge you have had to face? How did you solve it?

I did not have the opportunity to coincide with my predecessor, perhaps for this reason, the biggest challenge has been to understand the business well and all the work done in the financial area without having a previous orientation of the work that was being carried out. However, with the help and willingness of my team, the task has undoubtedly turned out to be much easier than initially planned

Briefly describe your background in the financial sector and previous experiences.

I began my professional career as an auditor at Deloitte, where I worked for two years. After that period, I joined the company Pierburg as a Financial Controller, where I developed my professional career for 18 years until joining the ESS Bilbao Consortium. Pierburg is a world leader in the design, development and production of automotive components. Working in the automotive sector, with its high demands, has made me learn to work in an innovative, high-quality and continuously improving environment

In the Controlling department, my main tasks and competencies were developed in planning, control and costs analysis, as well as the planning and monitoring



of the different strategic plans, financial closures and, of course, the bulk in the control and preparation of all reports. Within my duties I have also been directly involved in the administrative management related to the preparation, presentation and monitoring of R+D projects before the different Public Administrations. And I have participated in the qualification of the company as a member of the RVCTI, Basque Science, Technology and Innovation Network.

What do you consider to be the key elements in an organization like ESS Bilbao to be successful in financial planning?

In order to carry out successful planning, it is important to:

- Carry out a good analysis of the current situation and resources first. WHERE AM I.
- Plan and set realistic and ambitious goals and deadlines. WHERE AND WHEN I WANT TO GO. PLAN.
- Act to achieve these goals. DO
- Measure, analyse and control the results obtained. CHECK
- Establish corrective measures to reach goals, ACT

For all the above mentioned, it is vital to have reliable data and adequate control tools.

Highlight the three points that you consider most satisfactory in the development of your daily tasks

- Have the opportunity to learn and grow as a professional, always trying to keep up to date with the latest news and trends in our financial field.
- Be surrounded by a competent team always willing to continue growing together.
- To know that, with our work, in the ESS Bilbao Consortium we are contributing to something as exciting as cutting-edge science at the service of society, generating quality added value for the future of humanity.

What measures do you use to evaluate the financial results at ESS Bilbao?

At ESS Bilbao, we always try to carry out an optimal management of our resources so that the execution of projects is carried out with the best quality, on time and at the lowest possible cost

Is the international profile of the ESS Bilbao Consortium an opportunity for you, why?

Working in an international environment is always an opportunity and an added value. It allows you to acquire a global mindset, expand your network of contacts, maintain and develop communication skills in another language, and increase the chances of professional development. Without a doubt, it was one of the most attractive conditions of the Consortium's project.

Do you plan to implement any innovative measures within the finance department, which ones?

I have a lot of things in mind, now it's time to gradually get with them according to the priorities of the moment.

One of them is to start with the implementation of an efficient management and control system for costs per project. It seems to me that the correct management and control of the profitability of the projects will be in the future one of the keys to decision-making in the Consortium

How would you define yourself?

I am an optimistic person by nature, I also consider myself hardworking and demanding, I like to seek "excellence" in my work. I try to apply the phrase "Play to win", trying to give the best version of myself. I have been lucky to have the best example at home (my parents), who every day inspire me both professionally and personally to always try to improve.

ESS Bilbao consolidates its future with the signing of a new addendum

The Basque Government Council has authorised, at the proposal of the Minister of Education and the Minister of Economic Development, Sustainability and the Environment, the ratification of the second addendum to the collaboration agreement signed with the General State Administration to extend the life of the ESS-Bilbao Consortium. This new addendum expands on the one signed by both Administrations (in 2017) and consolidates ESS Bilbao programmes until the end of 2027, as well as the corresponding financing for this period.

In line with this fact, ESS Bilbao and ESS ERIC have recently secured the final In-Kind Contribution Agreement for the construction phase after a long process of negotiations.

It is worth highlighting the extension that is being made within the framework of financing until the end of 2027. These changes are due to the update of the construction costs of the European Spallation Source ERIC, after a review of the design adapted to the current safety requirements that must be met in the project.

The approval of the addendum means the final approval of our Strategic Plan 2024-2027

Likewise, the approval of the addendum means the final approval of our Strategic Plan 2024-2027. This Strategic Plan is designed to guide ESS Bilbao's actions over the next four years and defines the strategic priorities for the period, deploying the corresponding strategic objectives for their fulfilment and establishing specific and ambitious indicators for their monitoring.

ESS Bilbao will continue the development of scientific and technological components for international and national scientific infrastructures, consolidating and reinforcing the Basque and Spanish ecosystem of neutron science, technology and innovation.

ESS Bilbao MIRACLES developments

During this spring, several campaigns related to the installation of the MIRACLES instrument guide have been carried out at ESS.

In the bunker section, the ESSBilbao team assembled the supports so that our supplier SwissNeutronics could install the guide with its respective vessels. The guide through the bunker, called Bunker Wall Insert, which is designed to carry the neutrons fromthe inside to the outside, has been successfully installed. Our industrial partner S-DH is the company in charge of manufacturing and assembling the stretch.

Now, the guides are in place at ESS, awaiting the upcoming installations during this autum and winter.

MIRACLES instrument is the time-offlight backscattering instrument of the European Spallation Source. Revealing dynamic processes over a wide energy range, it will serve life science, polymer science, energy materials, magnetism studies and much more.

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ESS BILBAO HIGHLIGHTS

Click on the image to see the video

ESS Bilbao Klystron in place, ready to be tuned-up

The ESS Bilbao rigging team has successfully downloaded in its test stand a high-power klystron built by Communications & Power Industries (CPI).

This vacuum electron tube will power the RFQ of the 3 MeV accelerator under development by ESS Bilbao as a first step of a future “fully-fledged” HiCANS (High Current Accelerator-driven Neutron Source), the ARGITU project.

People from ESS Bilbao visiting ESS site for the first time

ESS Bilbao’s team members who never had the opportunity to come to the European Spallation Source ERIC site and see at first-hand what they have contributed to, had during two-day visit the chance to directly see the facility and realise the huge In-Kind contribution made by ESS Bilbao and our industrial partners.

Thanks to the European Spallation Source ERIC In-Kind partners visit & workshop team were the responsible of the organization the visit. Different spokespersons made interesting presentations to review the entire project, focusing on our key in-kind contributions for ESS. They presented the status and perspectives of the ESS project and finally explained what can be done with neutrons and the benefits of neutron science.

During the guided tour our colleagues could see the Accelerator Tunnel and Gallery, there they saw our In-Kind the MEBT and the RF systems. They had also the opportunity to visit the amazing Target Building with the huge space for the Target Station (Monolith vessel and all our components inside) as well as the Experimental Halls, where ESS Bilbao’s instrument will be located. Our In-Kind contributions are finally in place to serve for neutron science.

ESS Bilbao team with members from finance, technicians, engineers, who never had the opportunity to visit the project, were highly excited and motivated after seeing first-hand the key contribution that ESS Billbao has made to the ESS project, and how they daily work is contributing to the construction of this cutting-edge Big Science Facility.

newsletter

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