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#ayudasCDTI
#asesoramiento
#internacionalización



Diálogo en Innovación España – EE.UU MIT-CDTI

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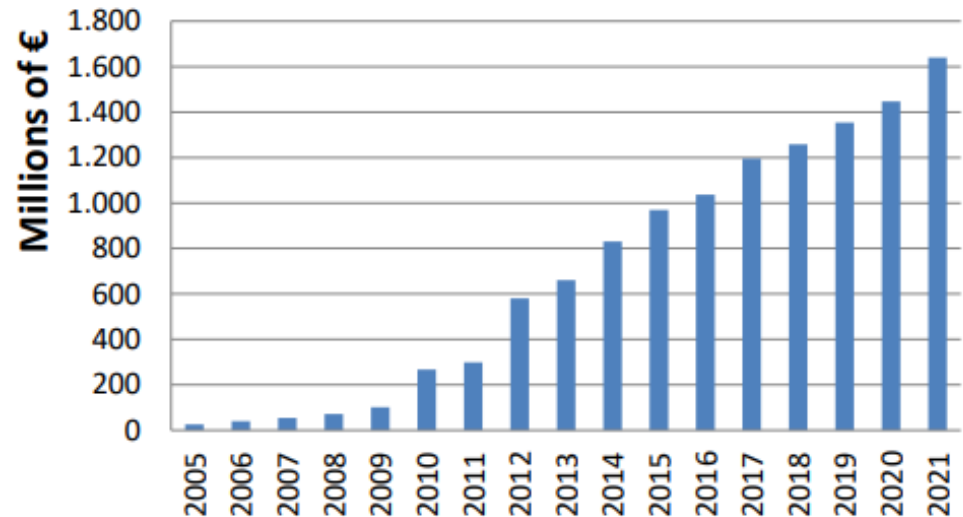
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Big Science in Spain

During the last 16 years, the Spanish industry has been awarded with more than 1600M€ in a very challenging and competitive market

- CDTI hosts the Spanish Industrial Liason Officer network in Big Science (Astronomy, Particle Physics and Fusion energy)
- CDTI supports the Spanish industrial R&D in Big Science
- CDTI encourages the international cooperation

Accumulated industrial Return in Large Scientific Facilities
- Astronomy, Particle Physics and Fusion



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Spanish capacities in Big Science



IFMIF-DONES ESPAÑA

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WEB www.ifmif-dones.es
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IFMIF-DONES, A KEY INFRASTRUCTURE IN THE ROADMAP TOWARDS FUSION ENERGY

The need of a fusion-like neutron source for the qualification of the materials to be used in a fusion power plant has been widely recognized since the beginning of the Fusion Programme. This Fusion Programme is based in three main pillars, ITER, DEMO and IFMIF-DONES, being this last one the fusion neutron source facility for materials development and qualification. This fusion relevant neutron source facility ("the Facility") will provide to DEMO the necessary data for material testing under similar irradiating conditions. Therefore, the Facility should be constructed and operated soon enough to obtain material information to meet DEMO and future power plants planned schedules in compliance with fusion roadmaps.

The Roadmap for the Fusion electricity production is summarized in the figure 1.

WHAT IS IFMIF-DONES?

The International Fusion Materials Irradiation Facility - Demo Oriented Neutron Source (IFMIF-DONES) is a single-staged novel research infrastructure for testing, validation and qualification of the materials to be used in future fusion power plants like DEMO (a demonstration fusion reactor prototype). In relation to this international project, in December 2017, Fusion for Energy (F4E) evaluated positively the joint Spain-Croatia proposal to site the IFMIF-DONES in Granada.

The DONES Facility will be a Plant containing all the necessary buildings and systems to house and run an accelerator-based D-D neutron source to produce high-energy neutrons at sufficient intensity and irradiation volume to simulate as closely as possible the first wall neutron flux and spectrum of future nuclear fusion reactors.

The facility will produce a 125 mA deuteron beam, accelerated up to 40 MeV and shaped to have a nominal cross section in the range from 100 mm x 50 mm to 200 mm x 50 mm, impinging on a liquid lithium target 25 mm thick cross-flowing at about 15 m/s in front of it. The stripping reactions generate a large number of neutrons that interact with the materials samples located immediately behind the Lithium Target, in the Test Modules.

AND IFMIF-DONES IS FINALLY BECOMING A REALITY IN GRANADA...

In 2018, promoted by Spanish and Croatian governments as well as F4E and EUROfusion, the IFMIF-DONES facility has been included in the European Strategy Forum on Research Infrastructures (ESFRI) Roadmap showing up the strategic interest of the facility for the EU scientific community.

SPANISH CAPACITIES IN LARGE SCIENTIFIC FACILITIES



-104 companies currently working in Big Science

-Capacities roadmaps in Astronomy, Particle Physics and Fusion

-The most relevant research entities also included

<https://www.cdti.es/index.asp?MP=35&MS=0&MN=1&TR=A&IDR=120&iddocumento=806&xtmc=&xtr=2>



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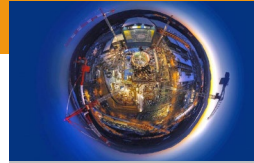
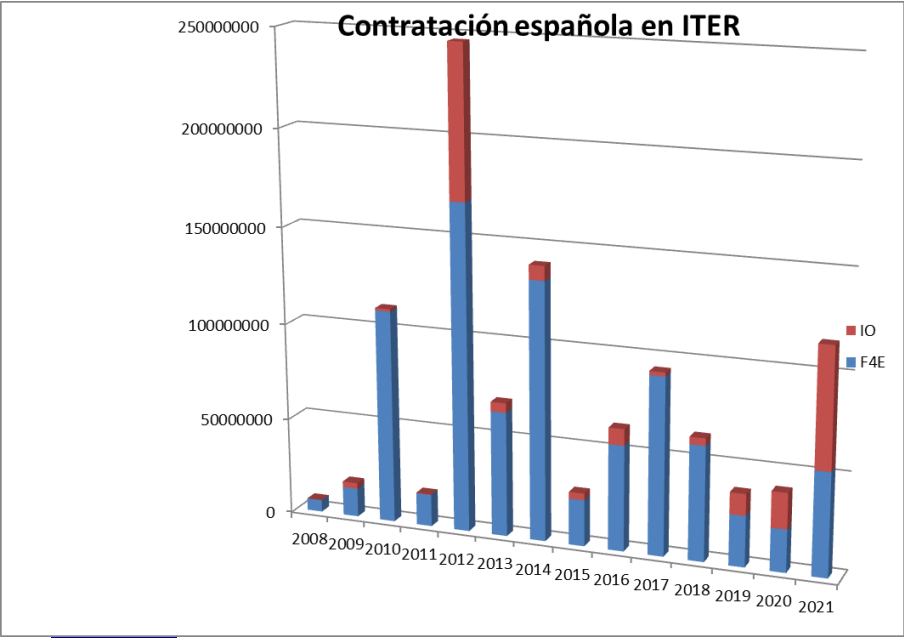
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SP in ITER



~370 contracts awarded to SP companies worth 1350 M€
 Spain is in the third position of F4E awarding ranking and on the 2nd position of IO awarding ranking



Buildings



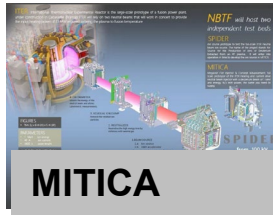
Superconducting Magnets



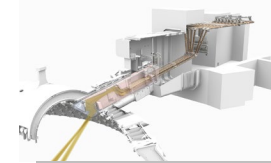
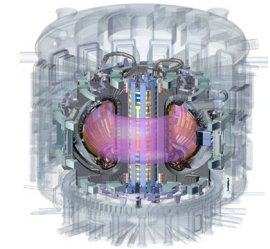
FW Panels



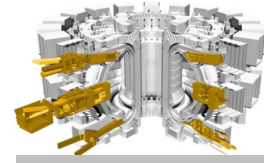
Vacuum Vessel



MITICA



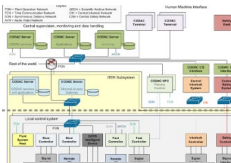
Upper Launchers



Diagnostics



Assembly



I&C



Power Supplies



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R&D Cooperation on fusion

- Since 2007, CDTI has funded R&D projects for fusion energy, developing technologies for ITER, IFMIF- DONES and even DEMO ~ 23.5M€
- Some examples
 - CIEN “Accelerators and other Big Science technologies” worth in 7.6 M€, mainly focused on DONES.
 - “Misiones Fusion Future”, value of 6.07M€; critical aspects in the way to fusion energy and focused on DONES and DEMO
 - “Industrial research on neutron technologies applicable to the IFMIF-DONES test cell “ with a value of 1,9 M€
 - “Industrial research in technologies and processes for IFMIF-DONES” with a value of 6,1 M€.



Save
The
Date!

Venue:

Granada Congress Center
4– 7 October 2022
Granada (Spain)

Registration and
sponsoring at:
at BSBF2022.org

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SEE YOU IN GRANADA!



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Technological collaboration programs with the USA

CDTI and Business
Innovation

Internationalization of
RTDI - USA



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Our activity

FINANCING

INTERNACIONALIZATION

RTDI

ADVICE AND SERVICES



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INNOVACIÓN

Multilateral & Bilateral Programs

- ✓ Goal: Achieve effective technological cooperation
- ✓ **Market-focused without predefined R&D lines**
- ✓ Bottom-up
- ✓ **At least two companies from two different countries**
- ✓ Balanced Consortiums
- ✓ **Open Call**
- ✓ National funds: each country finances its entities



Active policy: encourage participation in international programmes



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2014



2014



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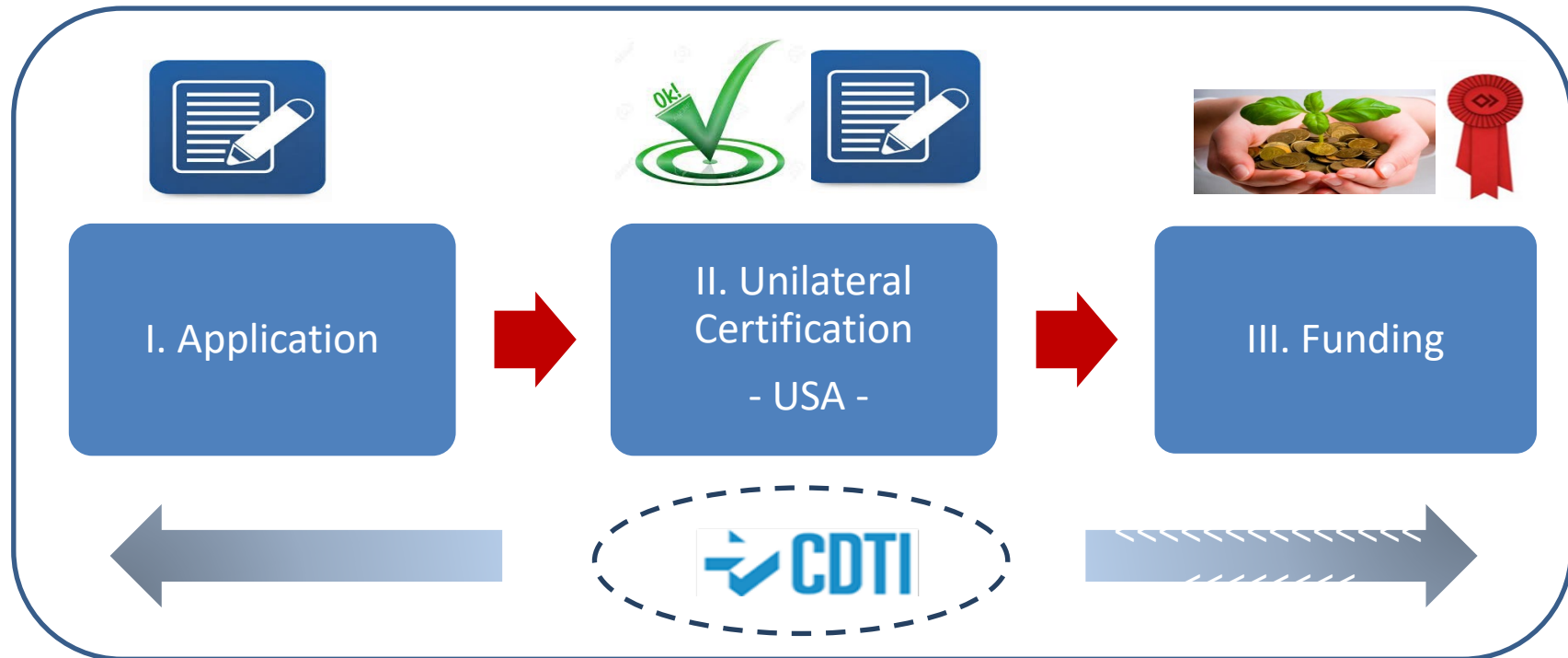
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Obtaining the Unilateral Certification - USA -



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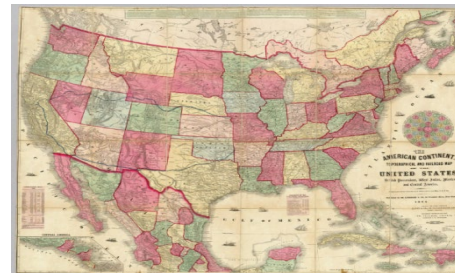
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¡Thanks for your attention!

+info sobre programas y ayudas CDTI
para
proyectos de I+D empresarial e innovación



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