



BigScience.dk

Diagnostics for ITER

Søren Bang Korsholm, BigScience.dk, Danmarks Tekniske Universitet
Seniorforsker på DTU Fysik, DK Industrial Liaison Officer til ITER/F4E



DANISH
TECHNOLOGICAL
INSTITUTE



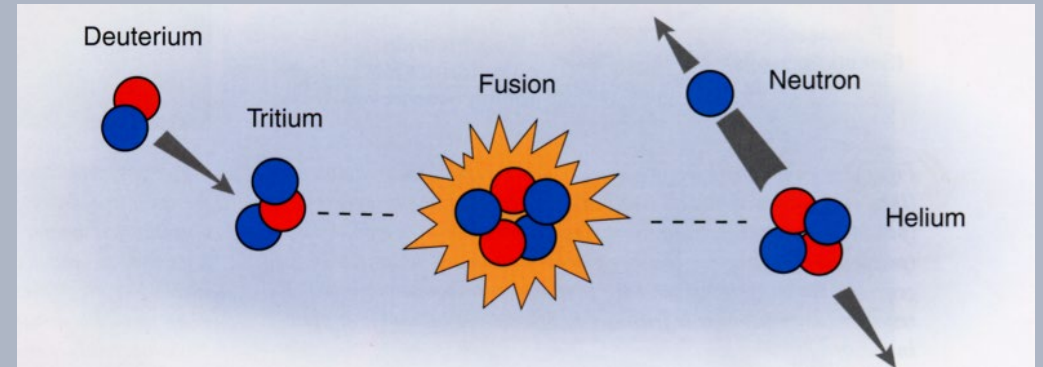
 Uddannelses- og
Forskningsministeriet
Styrelsen for Institutioner
og Uddannelsesstøtte

Fusion energy

Fusion er en universel energikilde...

... som vi gerne vil udnytte direkte på jorden

Fusion on Earth



Lifelong energy supply for a Dane:
10 g deuterium (from 500 L water)
15 g tritium (from 35 g lithium)

A 1 GW_e power plant needs an annual supply of:
¼ tons D+T (100 kg D + 350 kg Li)
i.e. energy supply for >1.000.000.000 years

Safety and waste

The reactor itself is the primary radioactive waste
<100 years

No transport of radioactive fuel or waste

No risk of meltdown or run-aways (1-2 g fuel)

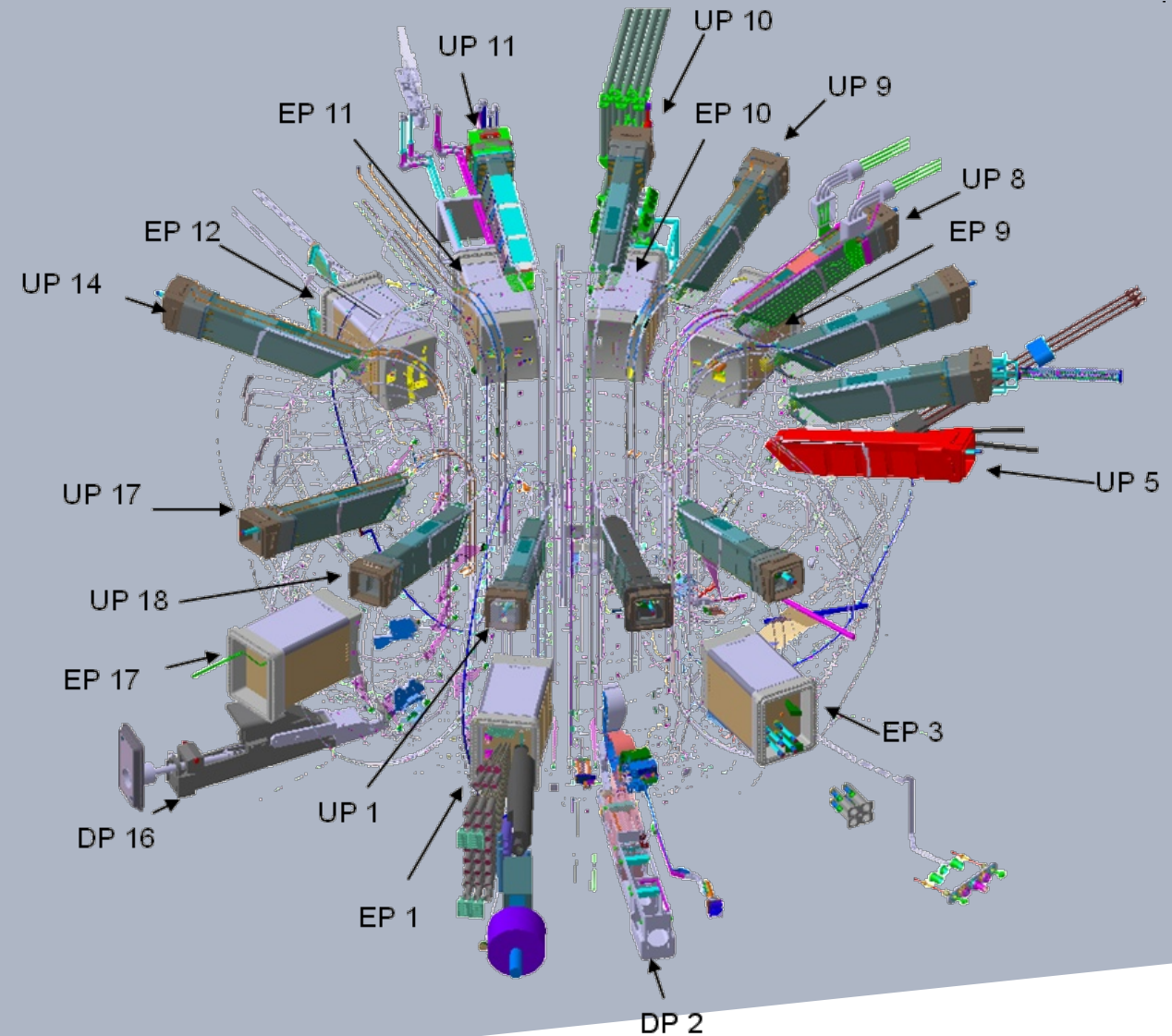
ITER – *The way to fusion energy*



Diagnostics – instruments showing the physics of the ITER plasma

- More than 100 diagnostic projects
- In many frequency ranges with widely varying technologies
- Need for many specialty services
- Primarily developed in research labs

A- Magnetics systems
B- Neutron systems
C- Optical systems
D- Bolometry systems
E- Spectroscopy systems
F- Microwave systems
G- Operational systems



Organisations sharing ITER and ITER diagnostics

MEMBERS DOMESTIC AGENCIES



- Total construction budget 2008-2025: ~ 150 mia kr
- ITER Organisationen (IO) tenders 10-15%
 - Rest is in-kind from partners
- Europe pays ~45% of ITER and contracts are tendered by Fusion for Energy
 - Main rule: only contracts with European companies
 - Primarily EU tender processes
 - Primarily large tenders of full systems -> find partners/primes
 - limited/direct tenders up to 135.000 Euro, single-sourcing på op til 50.000 Euro
 - Usually good pre-procurement activities

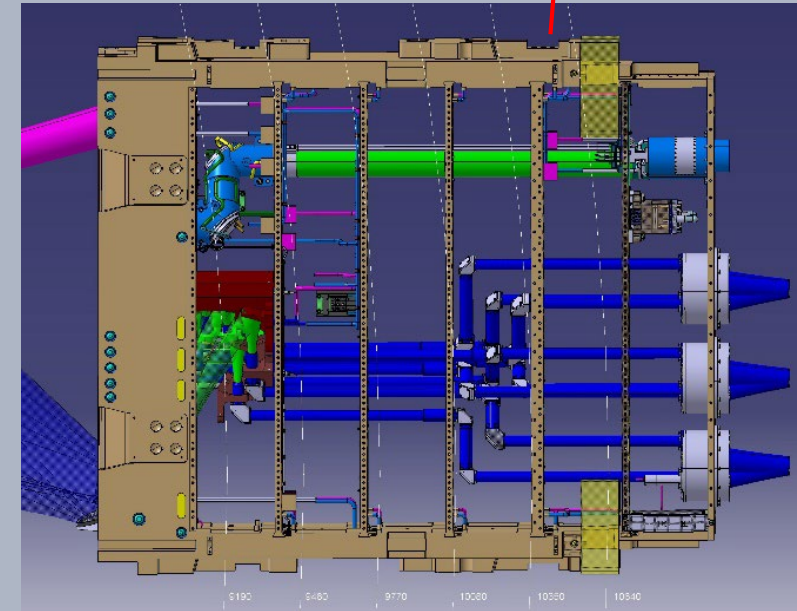
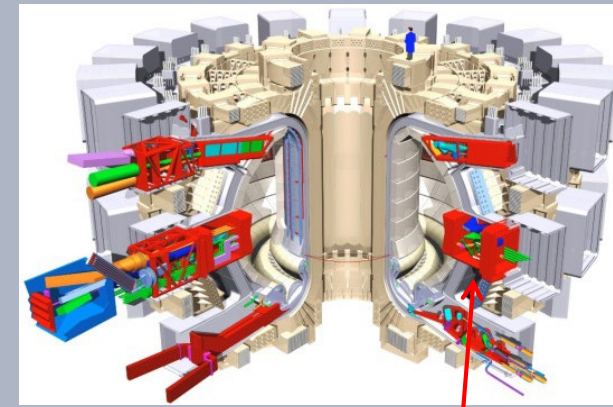


Diagnostic Design and Development of ITER Collective Thomson Scattering system

In 2014 DTU signed the largest Danish ITER contract with Fusion for Energy (F4E)

Scope: Research, analysis, development, design, and prototyping up to the final design stages of the CTS diagnostic -> passing preliminary and final design reviews in 2020 and 2021

- Total budget: ~8 M Euro
- F4E (EU) contribution: ~4 M Euro
- Participants: DTU Physics, IST (PT)
- Consortium lead: DTU Physics
- Principle Investigator (TRP): Søren B Korsholm
- DTU Physics share: ~80%
- Period: February 2014 to October 2022
- Manpower: ~60 FTE (man years)



Full price of the CTS diagnostic (development and hardware):
~15-20 MEuro



Status of the ITER CTS diagnostic

- Complete design package delivered from DTU to F4E
- F4E tenders the production of the CTS independently of DTU
 - Initially via OMF-1126 – a large framework contract with 4 diagnostic systems (~40 MEuro)
 - 3 consortia has been bidding on the CTS
 - Need for many subcontractors
- New market survey upcoming
 - Perhaps an option for Danish suppliers



Key: Find partners and make yourself known to primes

Matchmaking effort by F4E and at Business Forums (next pages)

F4E industry Portal

Open Opportunities

- F4E Calls +2
- Market Surveys
- Information Days
- Other Opportunities
- ITER Org. Opportunities

ILO Details
Contact your ILO and Access the ILO Network

Search Partners
Connect with potential industrial partners

Technology Transfer
Discover how to bring fusion technologies to the market

Procurement Documents
Find applicable guidelines & documentation

Industry Portal at a Glance

The Industry and Fusion Laboratories Portal is your point of entry for F4E and ITER business opportunities, as well as other initiatives around Fusion.

Show more ▾

Latest Published News

Show 10 entries

Search:

Reference / News title ^	Categories ^	Date v
CRYO & FUEL CYCLE: LN2 Cryolines Market Survey	Market survey	10-04-24
BUILDINGS: Procurement Strategy Update	Forthcoming	09-04-24
IO Market Survey for the Supply of Visible Survey Spectroscopy System	Market survey	04-04-24
ITER Organization: upcoming tender for the final design, qualification, and supply of the Port Plugs Mechanical Instrumentation (PPMI) optic fibre feedthroughs.	Forthcoming	03-04-24
Conference: EU Blueprint for fusion energy - Tuesday 23 April 2024, 09:00 - 18:00 CET, Strasbourg, France	Other Opportunities	02-04-24
CRYO & FUEL CYCLE: Neutral Beam Cryopumps Market Survey	Market survey	25-03-24
JT60SA: Market Survey on Integration of the JT60SA Actively Cooled Divertor	Market survey	21-03-24
TBM: Market Survey on Design and Manufacturing of Tritium Systems of the ITER Test Blanket System (TBS) DEADLINE TO ANSWER ON 20 MARCH 2024 EOB	Market survey	08-03-24
IO Market Survey for the Design, Manufacturing, Testing, Qualification, and Delivery of the VVPSS Valves	Market survey	27-02-24
MAGNETS: F4E sells about 5 tons of surplus Nb3Sn conductor strands.	F4E Calls	09-02-24

Showing 1 to 10 of 44 entries

F4E industry Portal ITER Org Procurement

The screenshot shows the top portion of the Fusion for Energy website. The header is dark blue with the logo and navigation links: HOME, HOW TO DO BUSINESS, CONTACT, and My Account. Below the header, there are two main sections. On the left, 'Open Opportunities' lists: F4E Calls (+2), Market Surveys, Information Days, Other Opportunities, and ITER Org. Opportunities. On the right, 'Industry Portal at a Glance' provides a brief overview. Below that, 'Latest Published News' features a table with columns for Reference / News title, Categories, and Date.

Reference / News title ^	Categories ^	Date v
CRYO & FUEL CYCLE: LN2 Cryolines Market Survey	Market survey	10-04-24
BUILDINGS: Procurement Strategy Update	Forthcoming	09-04-24
IO Market Survey for the Supply of Visible Survey Spectroscopy System	Market survey	04-04-24
ITER Organization: upcoming tender for the final design, qualification, and supply of the Port Plugs, Mechanical Instrumentation (PPMI), optic fibre feedthroughs.	Forthcoming	03-04-24

The screenshot shows the ITER.org/proc/overview page. The top navigation bar includes a search icon and links for JOBS (7), TENDERS (71), FAQs, VISITS, CONTACT US, ITER DIRECTORY, SUBSCRIBE, and DONATE. Below this is a secondary navigation bar with categories: ABOUT, MACHINE, SCIENCE, CONSTRUCTION, ASSEMBLY, and NEWS & MEDIA. The main content area is titled 'FOR INDUSTRY' and 'PROCUREMENT'. A sidebar on the left lists various navigation options. The main content area features a 'TENDERS OVERVIEW' section with a description of the Procurement and Contract Division's role and a 'Dear Supplier' section providing information about the transition to SAP Ariba.

FOR INDUSTRY

- PROCUREMENT
 - FUSION GLOSSARY
 - GENERAL INFORMATION
 - HOW TO APPLY
 - INDUSTRIAL SUPPORT
 - OVERVIEW OF TENDERS
 - TENDER PROCESSES
 - VAT AND OTHER EXEMPTIONS
- TENDERS
- PROCUREMENT REVIEW BOARD
- INTELLECTUAL PROPERTY
- FOREIGN WORKERS IN FRANCE
- BUSINESS EVENTS

TENDERS OVERVIEW

The ITER Organization's Procurement and Contract Division is responsible for procuring goods and services which ensure the best value for money for the Organization in a timely and efficient manner.

The Procurement and Contract Division is committed to achieving a competitive, fair and transparent procurement process while ensuring quality and reliability.

Dear Supplier,

ITER procurement has moved online
ITER Organization (IO) has selected SAP Ariba, a web-based tool that allows businesses to view and bid on opportunities with the ITER Organization. All procurements will take place on this tool and businesses will need to register and get an account. We are making this transition over time and in phases.

Find here official communication : [Digitalization of the ITER Procurement](#).

You have received an invitation email to register?

Please find below material to guide you through the registration process:

- Registration Guide for Invited Supplier (EN)
- Guide d'enregistrement fournisseur sur invitation (FR)
- How to register as a supplier upon invite from Iter (Video)

Meeting primes, collaborators, and Big Science organisations

- European Fusion Business Forum
 - Berlin, 3rd-4th July 2024
(not finally confirmed)
- Big Science Business Forum 2024
 - Trieste (I), 1st-4th October 2024
(see next slide)
- ITER Business Forum 2025
 - Marseille (F), 23rd-25th March 2025



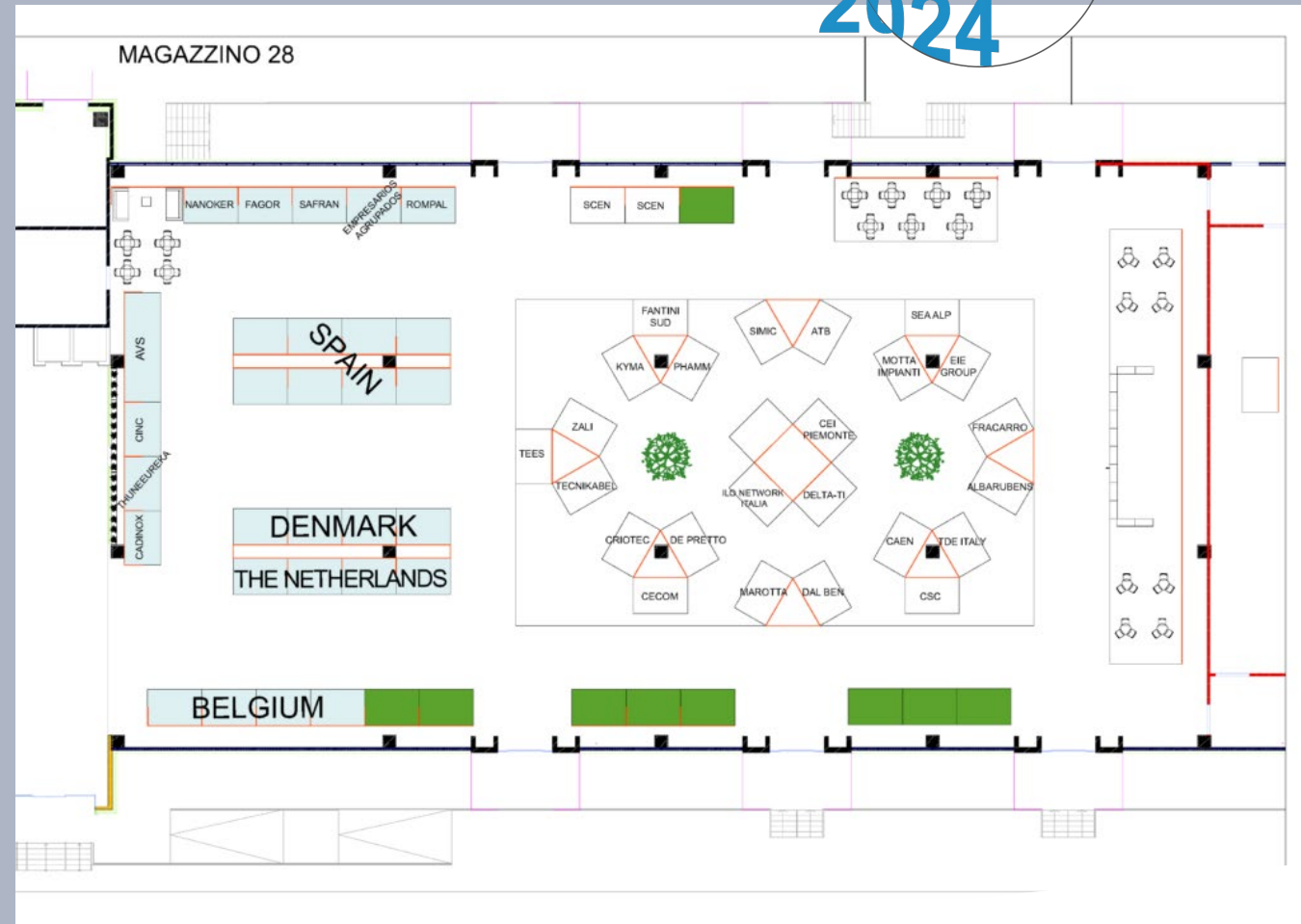
BSBF 2024

1.-4. October 2024, Trieste, Italien

Big Science Business Forum 2024

- Largest Big Science event in the World
 - More than 1000 participants
 - Presentations and representation from all major big science facilities and about 15 medium sized facilities
- BigScience.dk hosting a Danish booth with 8-10 companies
 - Do you want to join the booth and/or the Danish delegation?
- We plan to host a Nordic reception

<https://youtu.be/M80ErKKIhLg>



Spørgsmål

