

Fusion Research in Belgium

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LPP-ERM/KMS



A long history ...

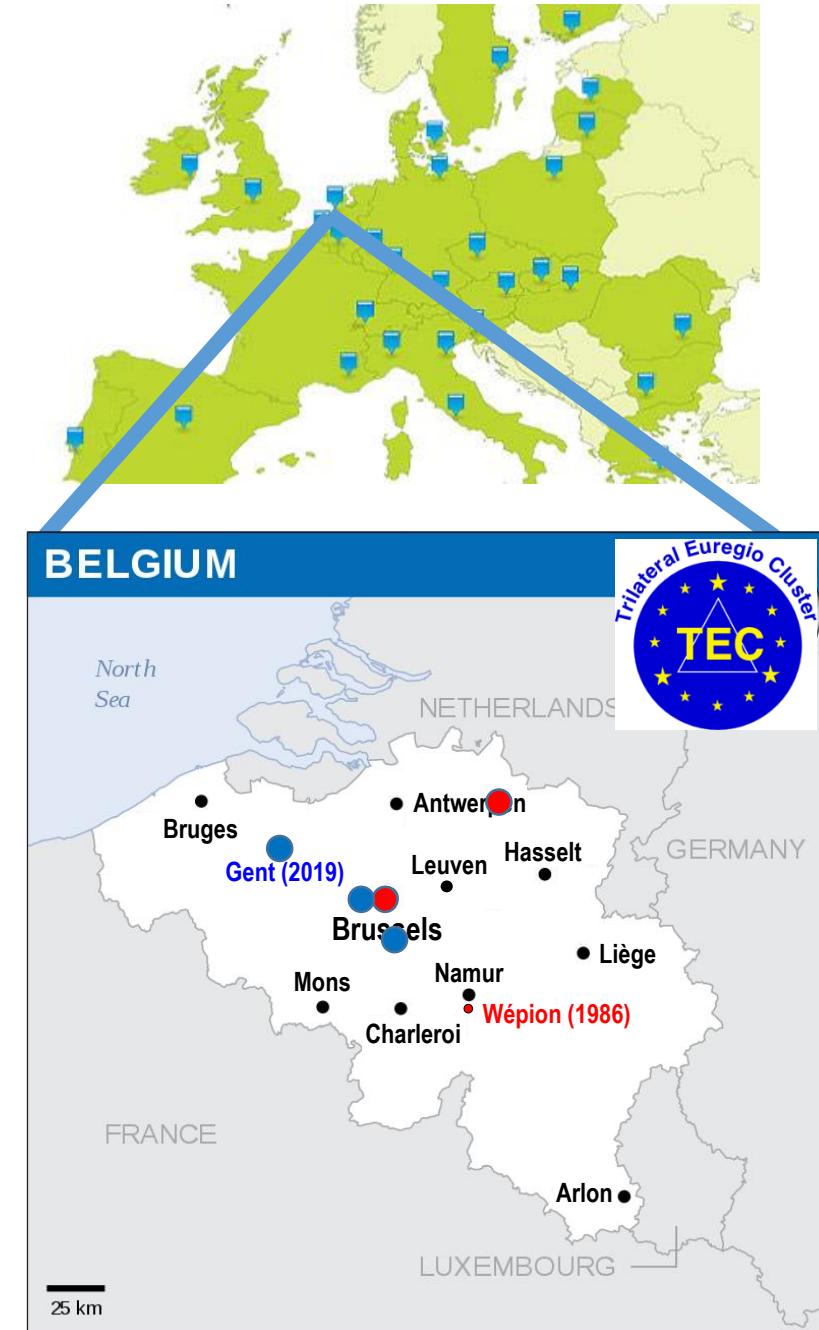
- First European Fusion Theory Conference:
16-18 June 1986 in Wépion, Belgium

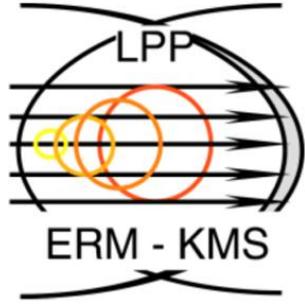
Number	Year	Location
1	1986	Wépion, Belgium
2	1987	Varenna, Italy
3	1989	Oxford, UK
***	***	***
16	2015	Lisbon, Portugal
17	2017	Athens, Greece
18	2019	Ghent, Belgium



General Structure

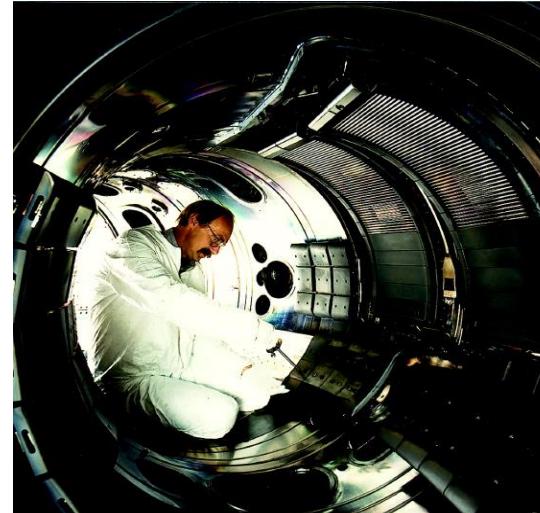
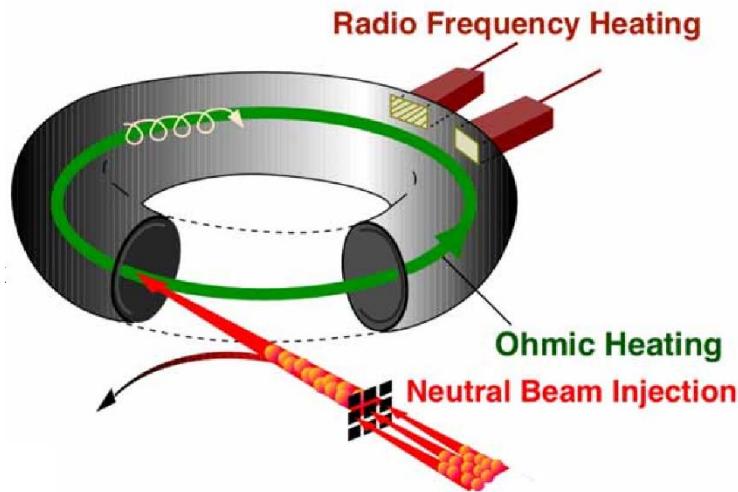
- Belgian Association and ITER Belgium
- Full integration **EUROfusion**
- 2 federal Laboratories :
LPP-ERM/KMS and **SCK•CEN**
- Participating Universities:
UGent, **KU Leuven**, **ULB** and **UCL**
- Supervised and sponsored by
Belgium via FOD Economy





Research topics LPP-ERM/KMS

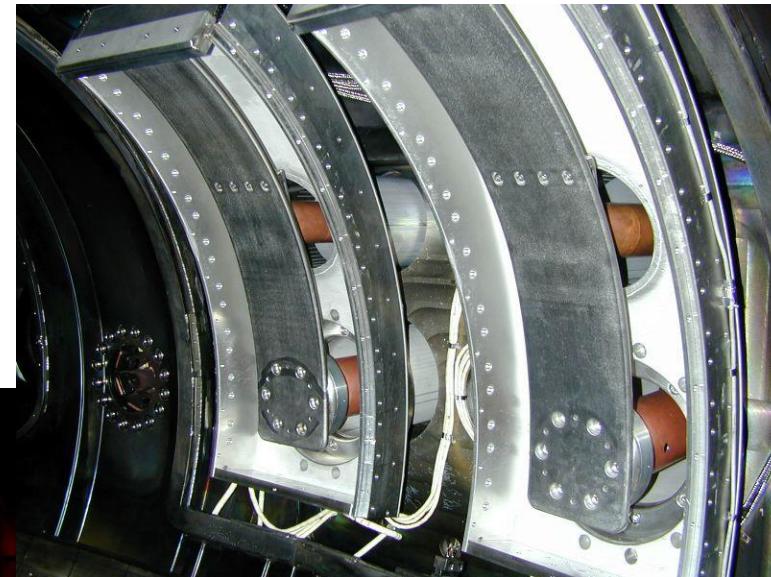
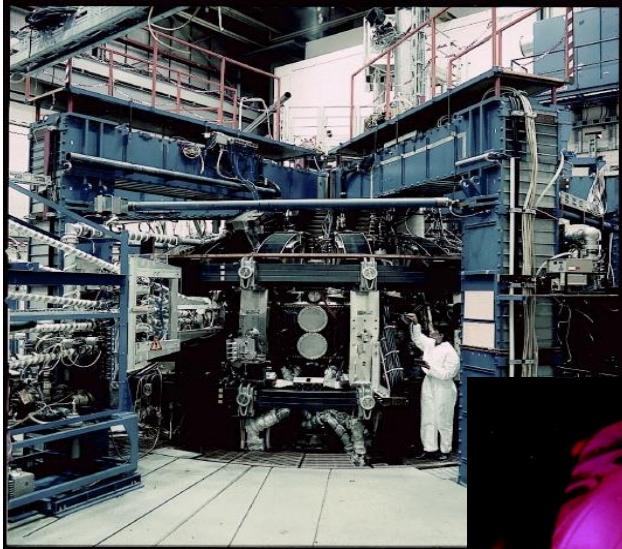
- ICRH-physics and systems



- Scenario and theory development
- Experiments and analysis
 - EUROfusion and TEC : JET, ASDEX Upgrade, W7-X, DEMO
- Antenna / matching system design : ITER, W7-X, ...

Research topics LPP-ERM/KMS

- TEXTOR (80ties – 2013) (IPP - Forschungszentrum - Jülich)



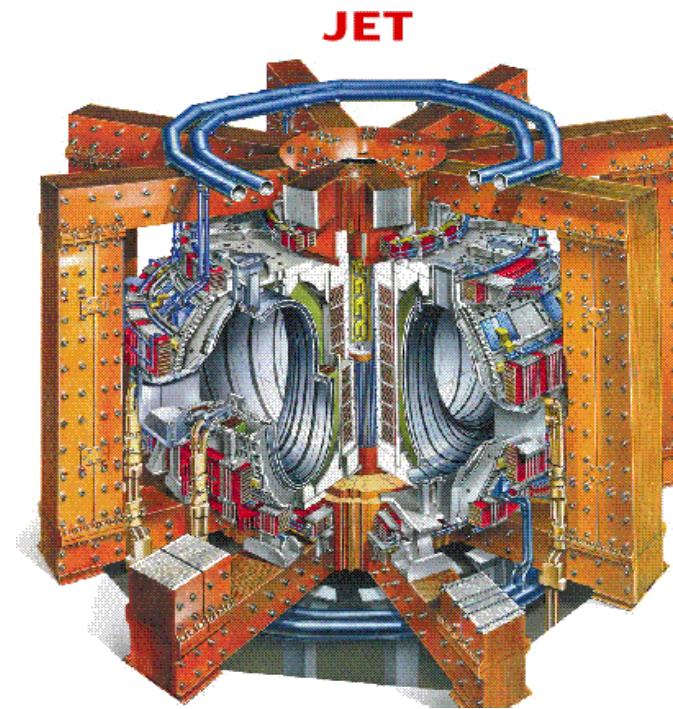
$R_o = 1.75\text{m}$

$P = 2 \times 2\text{MW}$

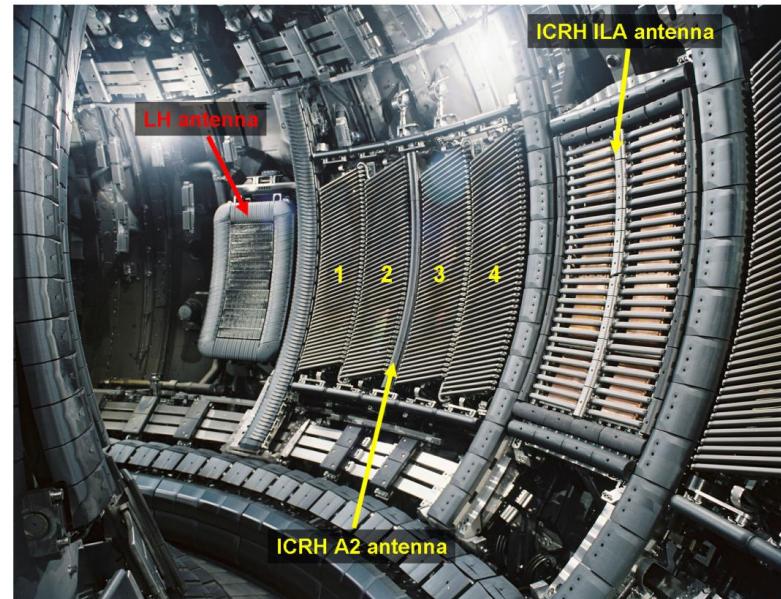
$25 / 38\text{ MHz}$

Research topics LPP-ERM/KMS

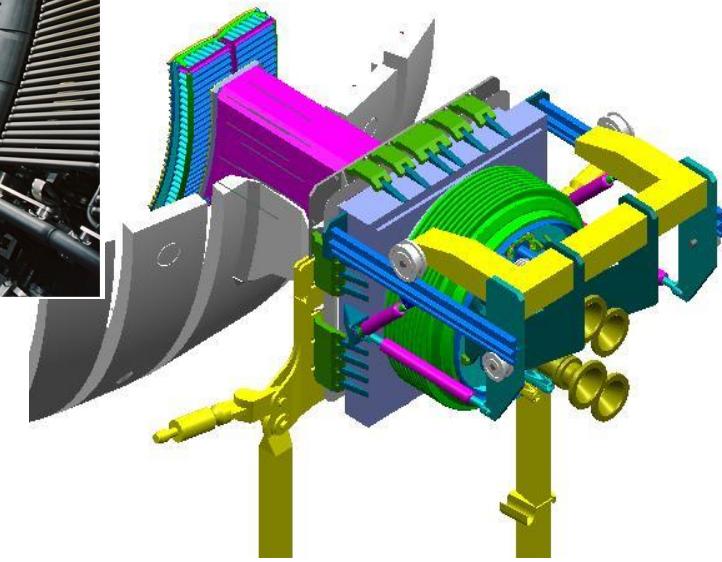
- JET – ITER-like ICRF Antenna



$R_o=2.96m$

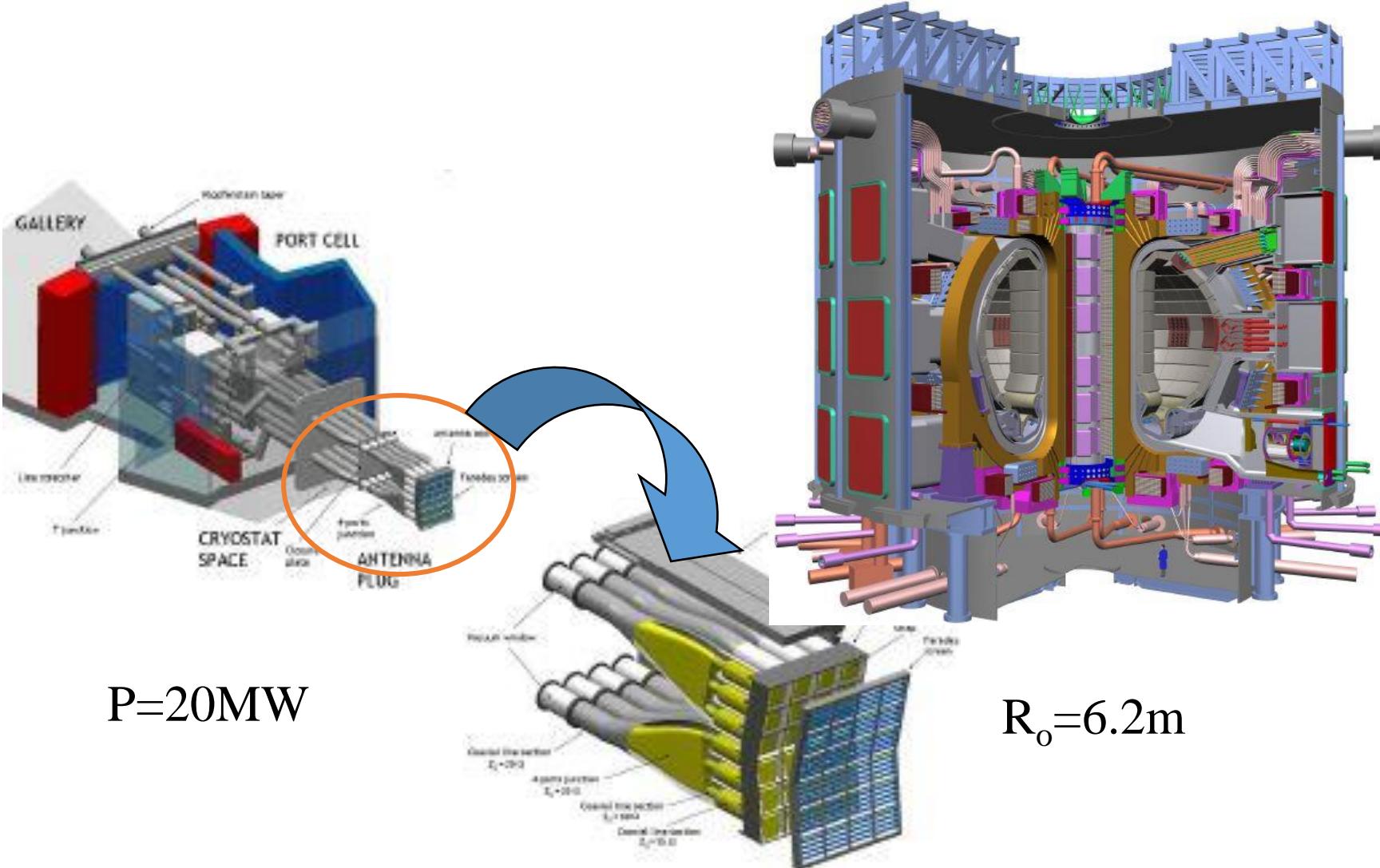


$P=8\text{MW}$



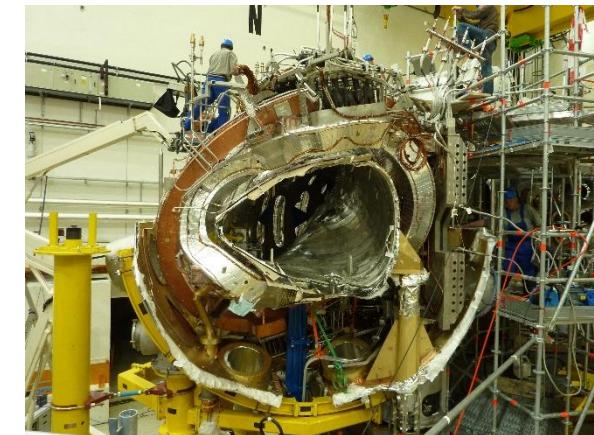
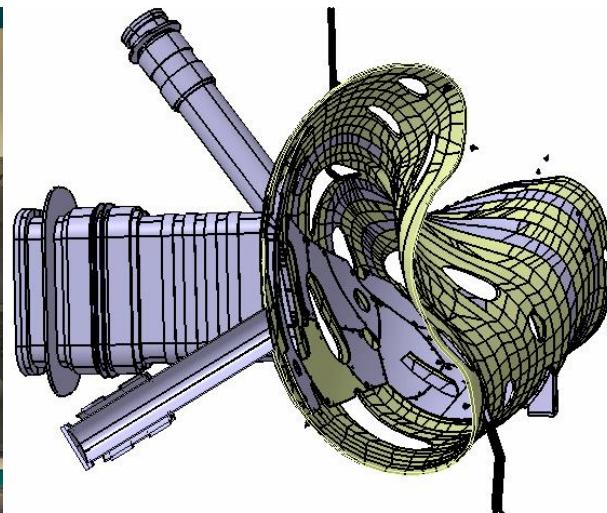
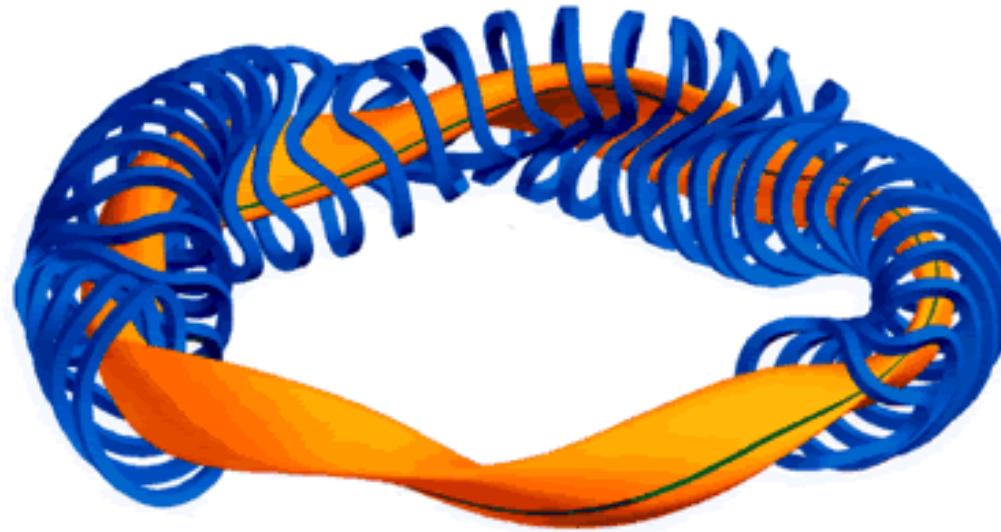
Research topics LPP-ERM/KMS

- ## • ITER



Research topics LPP-ERM/KMS

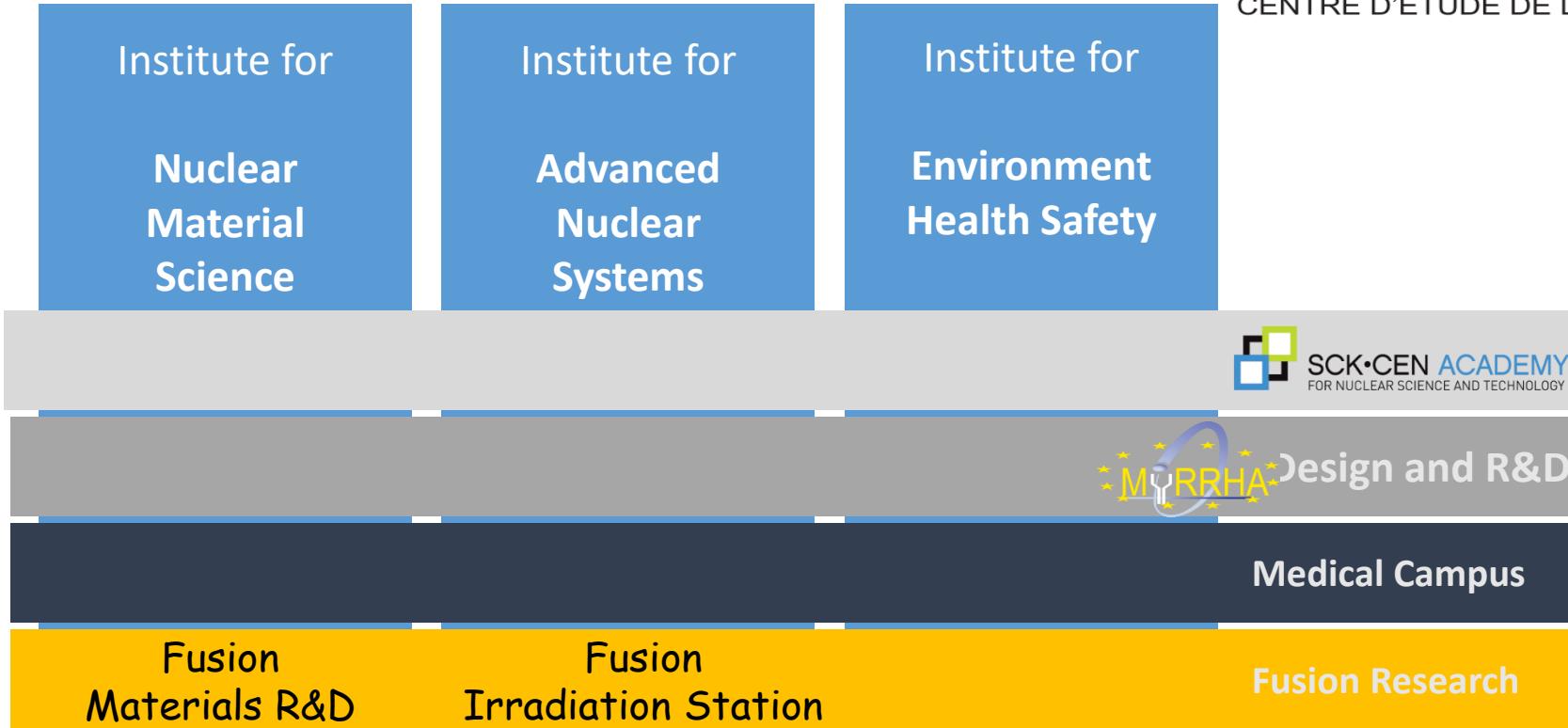
- W7-X
 - $R=5.5\text{ m}$
 - $r=0.53\text{m}$
 - $B=2.5\text{T}$
 - Duration = 30min



SCK•CEN Organisation

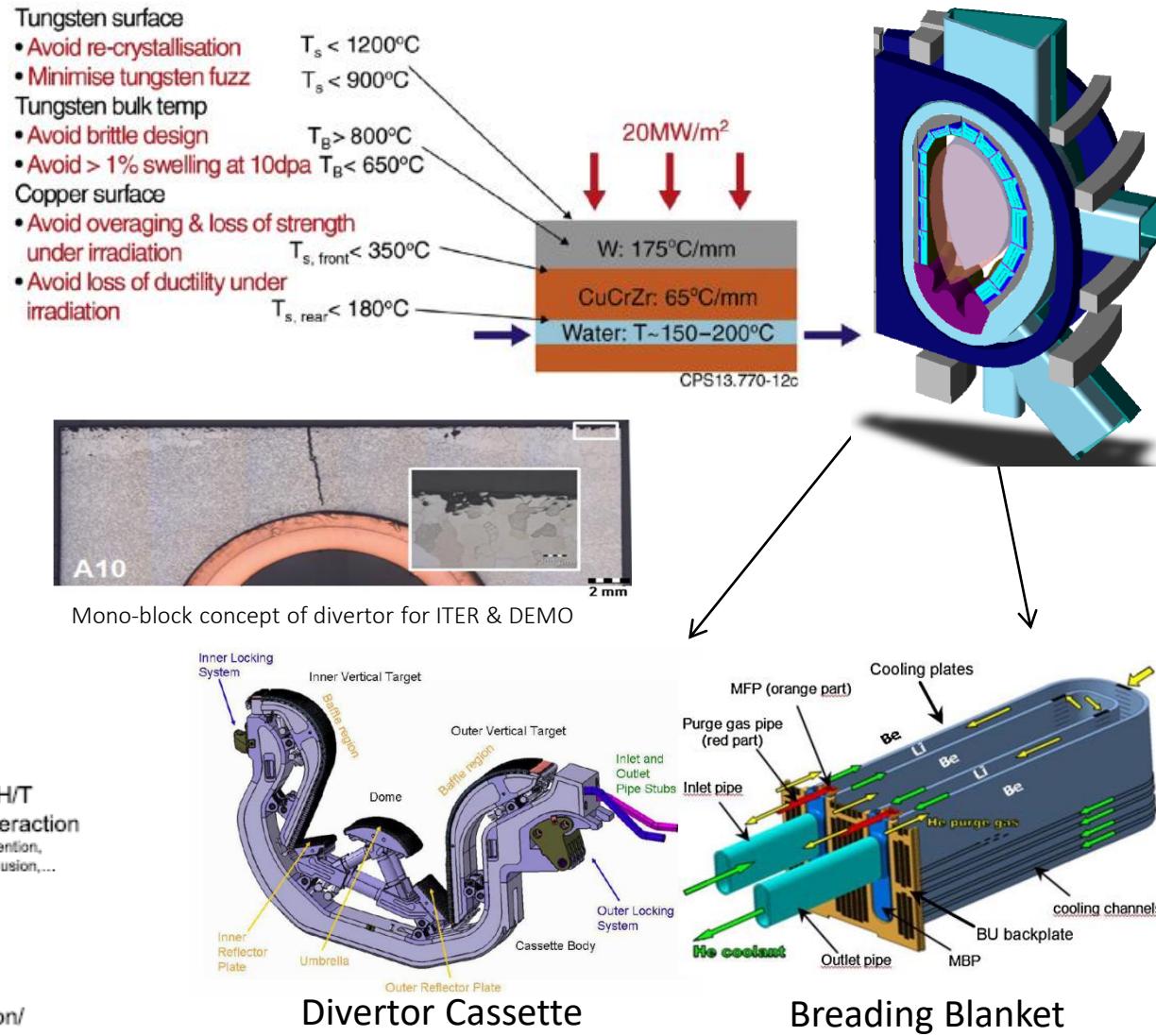
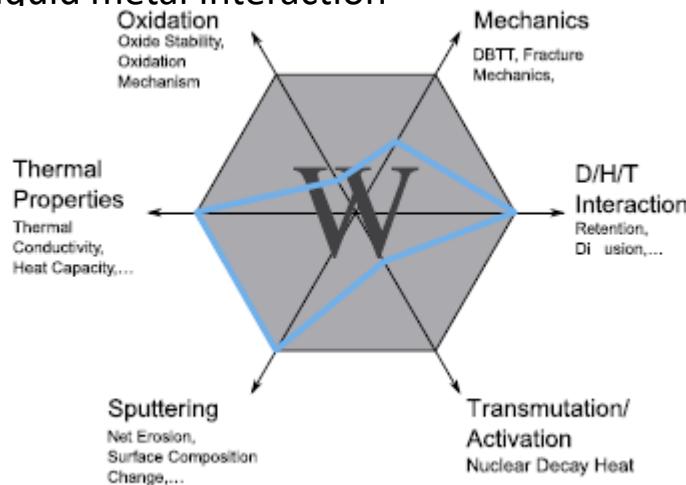


STUDIECENTRUM VOOR KERNENERGIE
CENTRE D'ÉTUDE DE L'ÉNERGIE NUCLÉAIRE



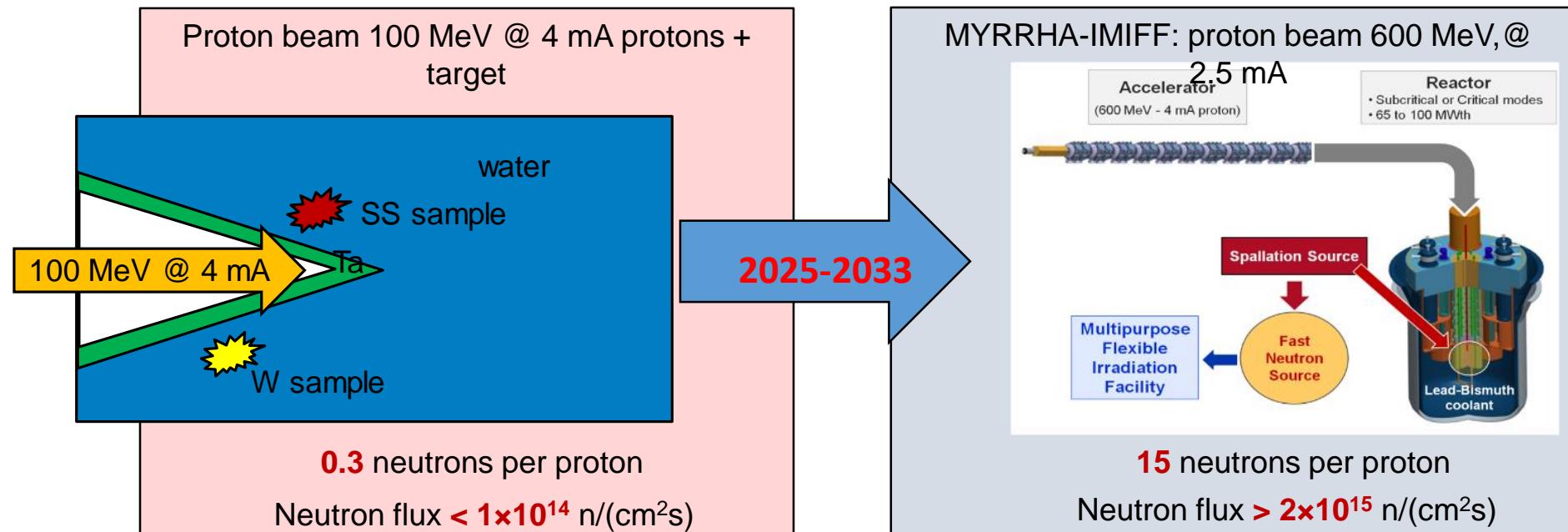
Fusion Materials are the focus of investigation

- Power Exhaust
 - Tungsten
 - Divertor
 - Irradiation brittleness
 - -> risk mitigation
- Tritium self-sufficiency
 - Ferritic steels
 - Tritium Blanket
 - Liquid metal interaction
 -



New irradiation facilities for FP9-FP10: Myrrha* irradiation

- Deliver dedicated fusion irradiation station by 2025
- Qualification of Small Specimen Test Techniques
- Large irradiation volume on Myrrha reactor 2033



*Multi-purpose hYbrid Research Reactor for High-tech Applications.

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