Paving the way towards **simplified, high-field, compact stellarators**

Victor Prost | Dutch Fusion Day | May 8, 2026

What we'll cover today

01 Renaissance Fusion's unique approach

02 Step 1: we manufacture the enablers

03 Step 2: we industrialize stellarators

04 Stellarators meet the Netherlands

05 What's next: collaboration & investment opportunities

RENAISSANCE FUSION

We are a stellarator AND a supply chain company

Grenoble (FR) + Pisa (IT)

60 million EUR raised

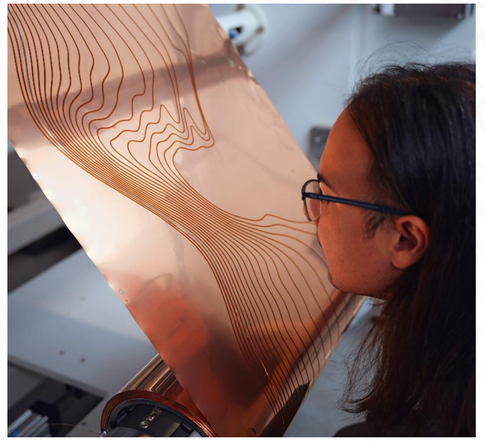
Over **110 employees** from **27 countries**

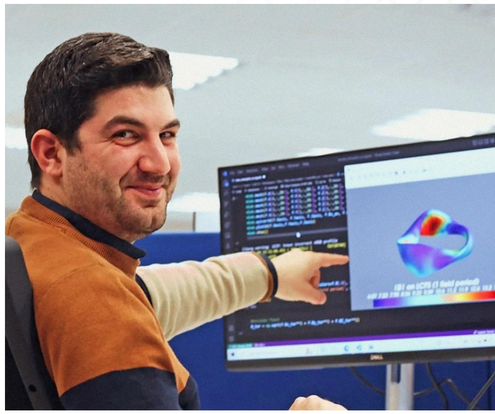
Over **4,500 m² of facilities**

12 patent families

cea

& other scientific partners





The race is on for fusion energy

- Fusion is now a strategic priority for major economies (US, EU, UK, China)
- Hyperscalers are securing long-term energy access to support AI growth
- Capital is rapidly flowing into the sector
- Leading players are targeting first demo plants in 2030s.

The challenge has shifted from physics to execution at scale.

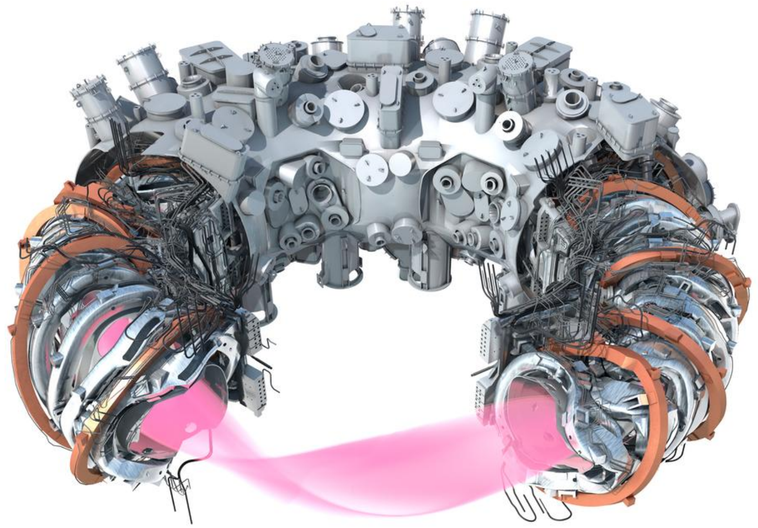
Image credit: Renaissance fusion

A unique approach

RENAISSANCE FUSION

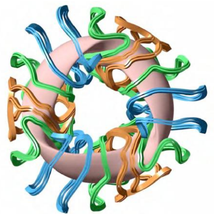
Our starting point: Fusion has structural bottlenecks

Manufacturing complexity

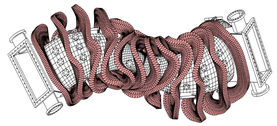


W 7-X
2015-

W 7-AS
1988-2002



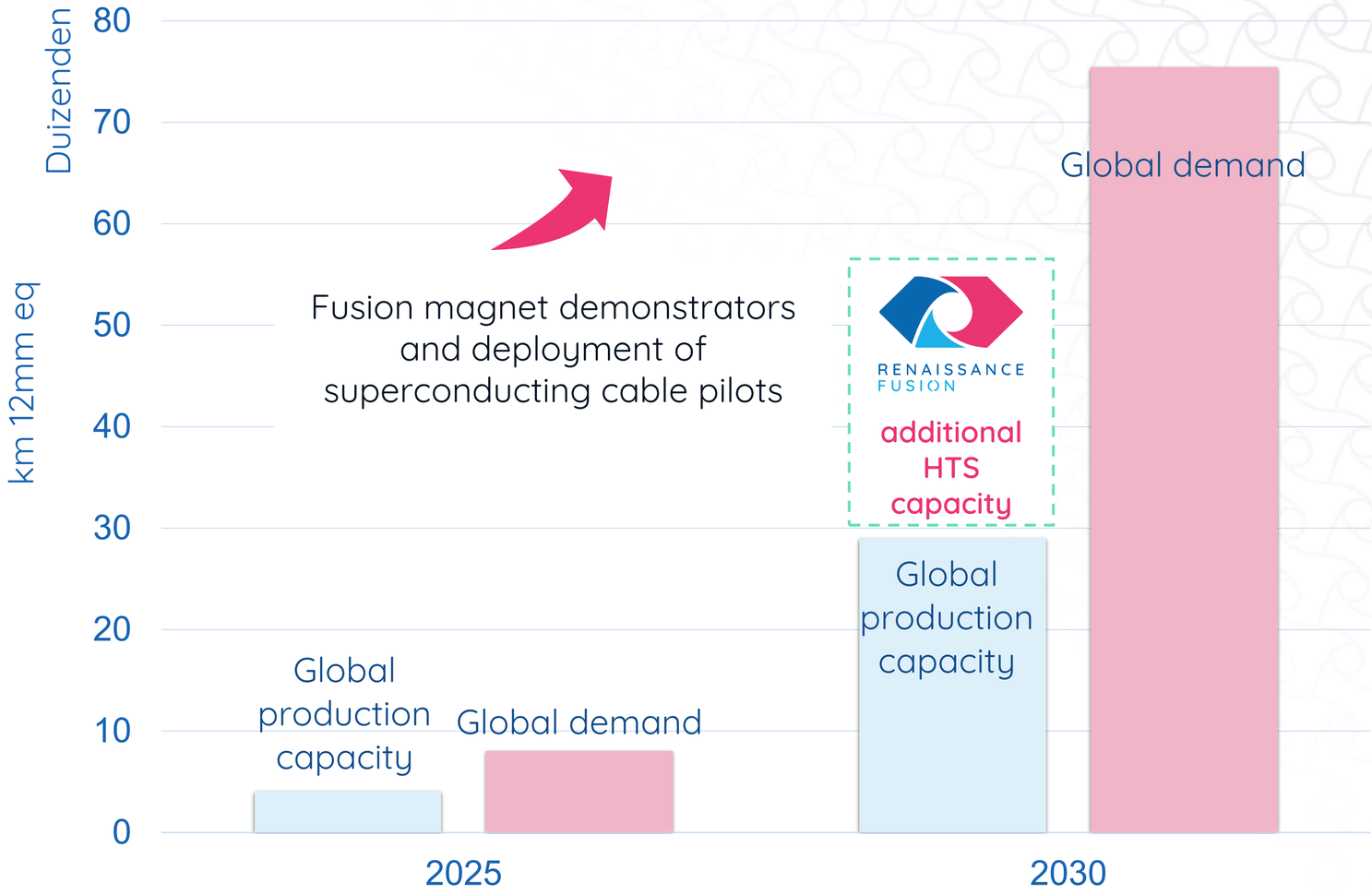
NCSX
2008



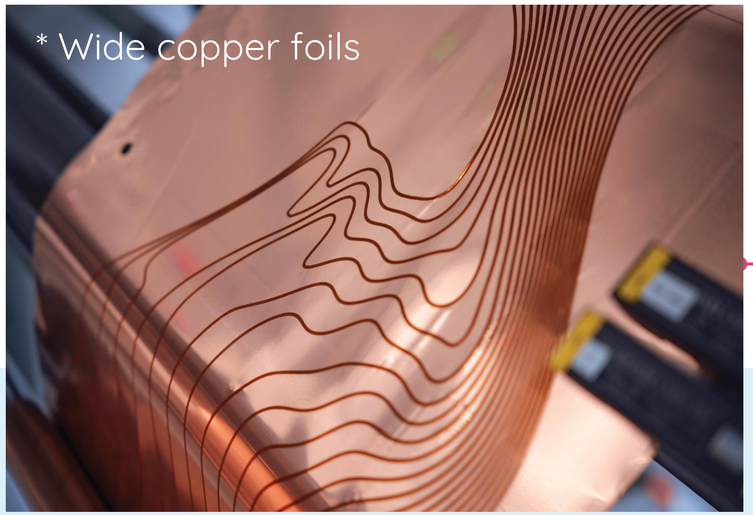
HSX
1999-

Supply chain constraints

Scalability



Solving the enablers: we manufacture our enabling technologies in-house



Laser Engraved wide HTS

Liquid metal walls

Simplified stellarator

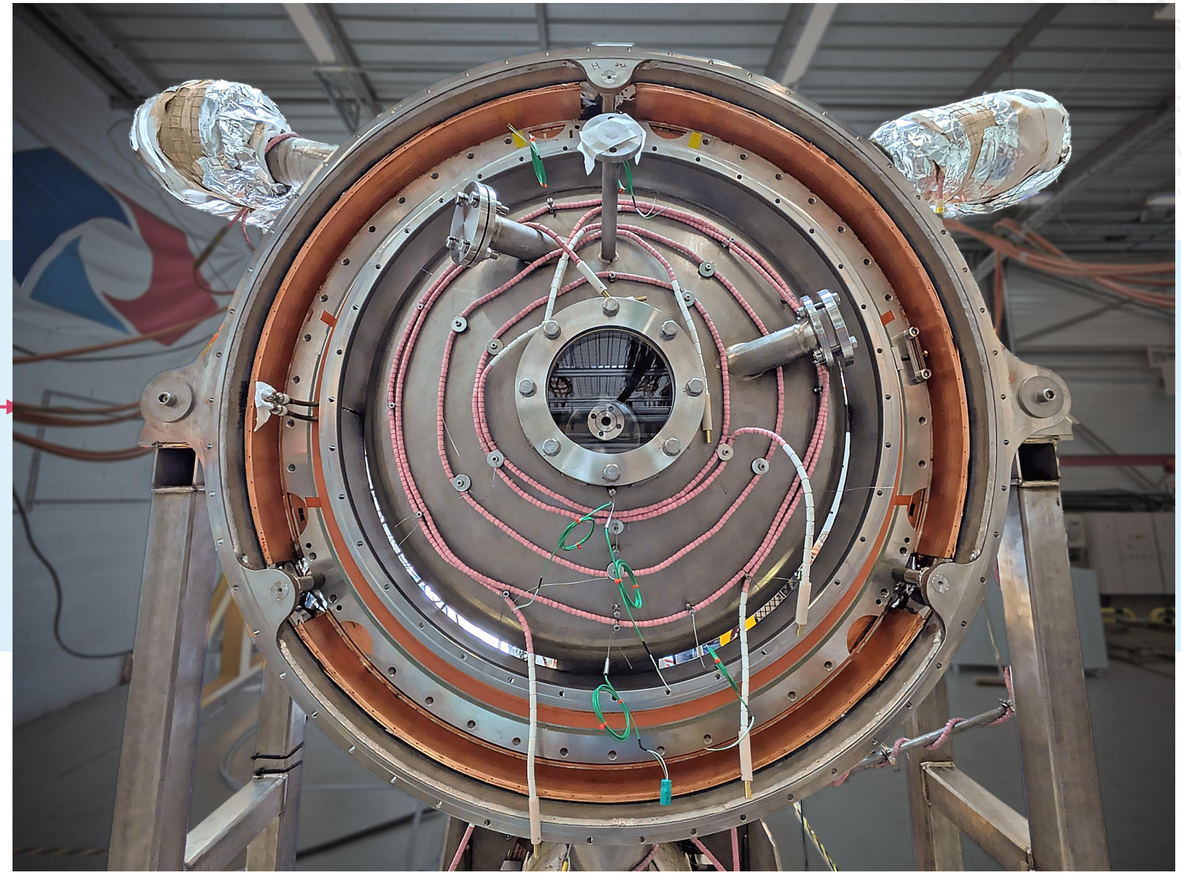


Image credit: Renaissance fusion

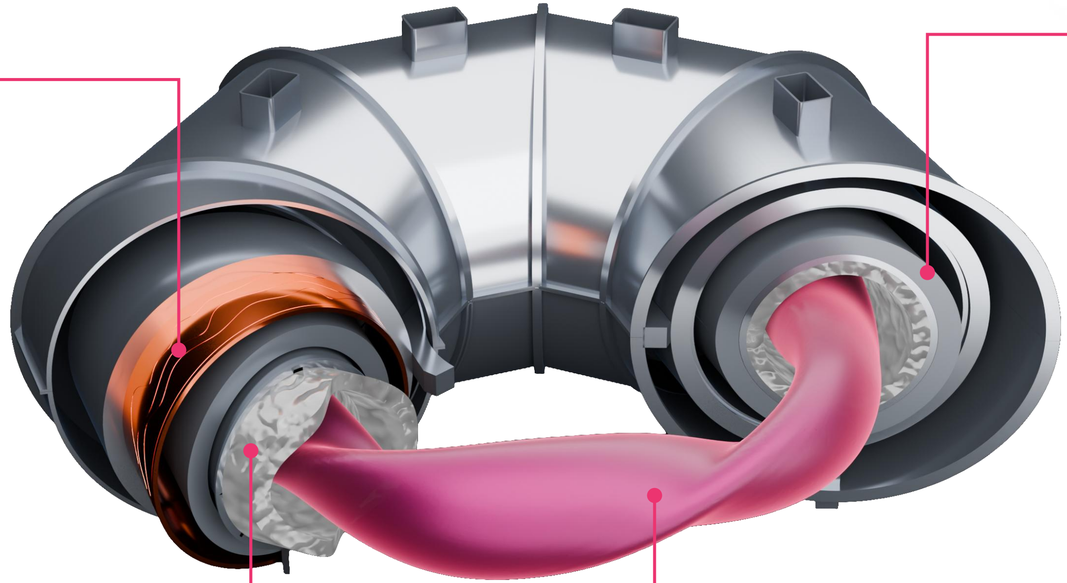
Simple by design. Built to scale

Chartreuse, Renaissance Fusion's stellarator

Modular
& compact design

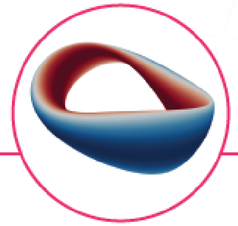
Laser engraving
of HTS* magnets

**High-Temperature Superconductors*



HTS magnets

Liquid metal wall

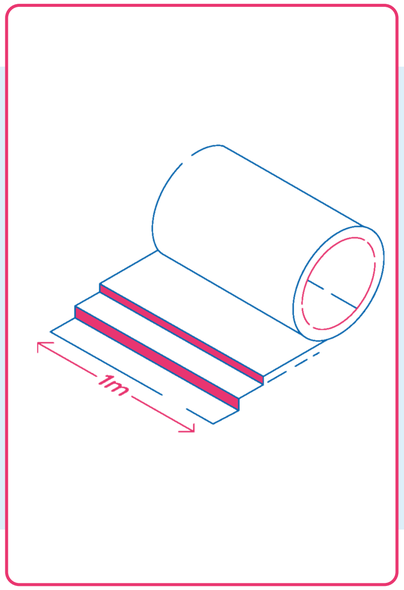


Plasma

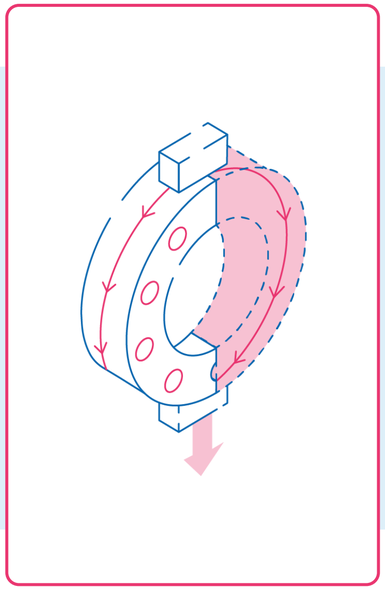
Our model: becoming the ASML of fusion

Phase 1:
Building foundation technologies, enabling the fusion Industry

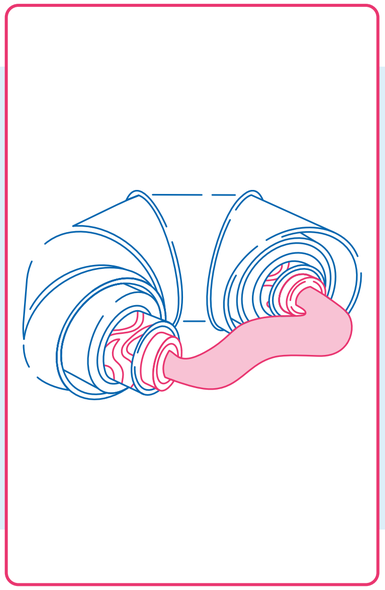
Wide HTS



Liquid metal walls

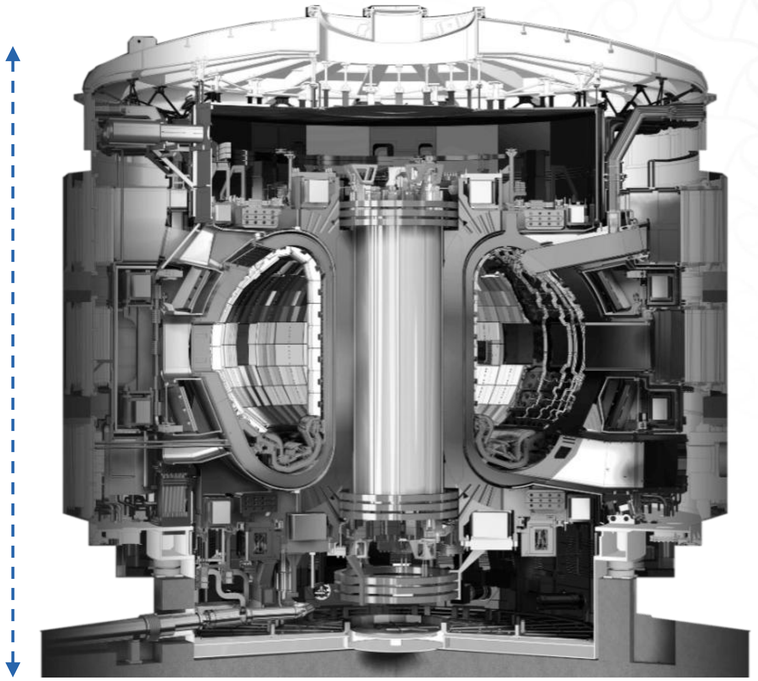


Simplified stellarator



We are building the supply chain the entire industry depends on

Phase 2:
Building the most scalable fusion machine



ITER (500 MWth)

RENAISSANCE FUSION

Chartreuse P (1 GWe)

We are on the race to manufacture and sell the most scalable fusion machine

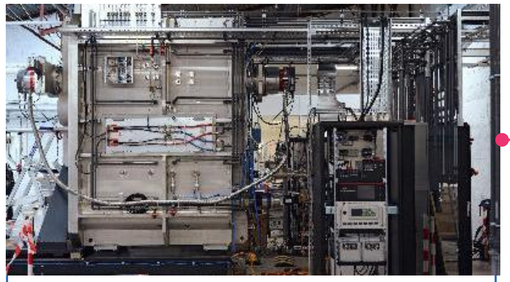
Step 1:

We manufacture the enablers

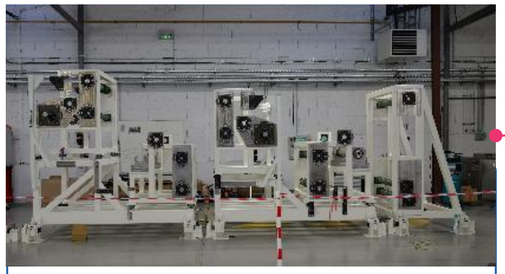
RENAISSANCE FUSION

Enabler 1: Bringing HTS to industrial scale

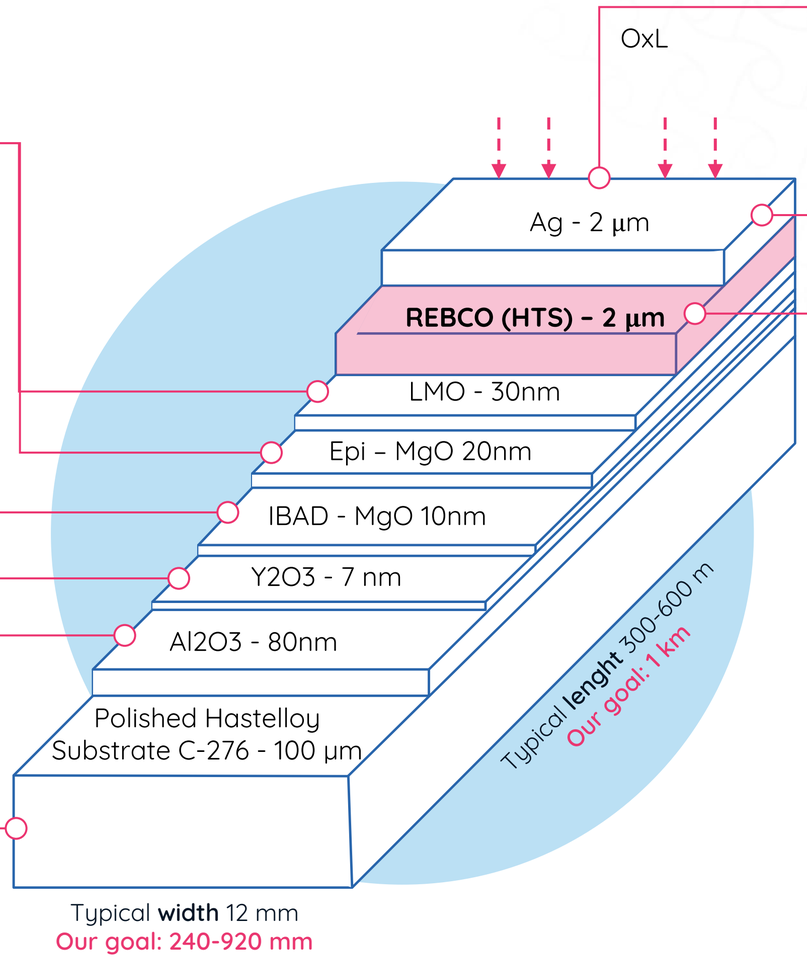
PVD2



PVD1



Polishing



Oxygenation

PVD2

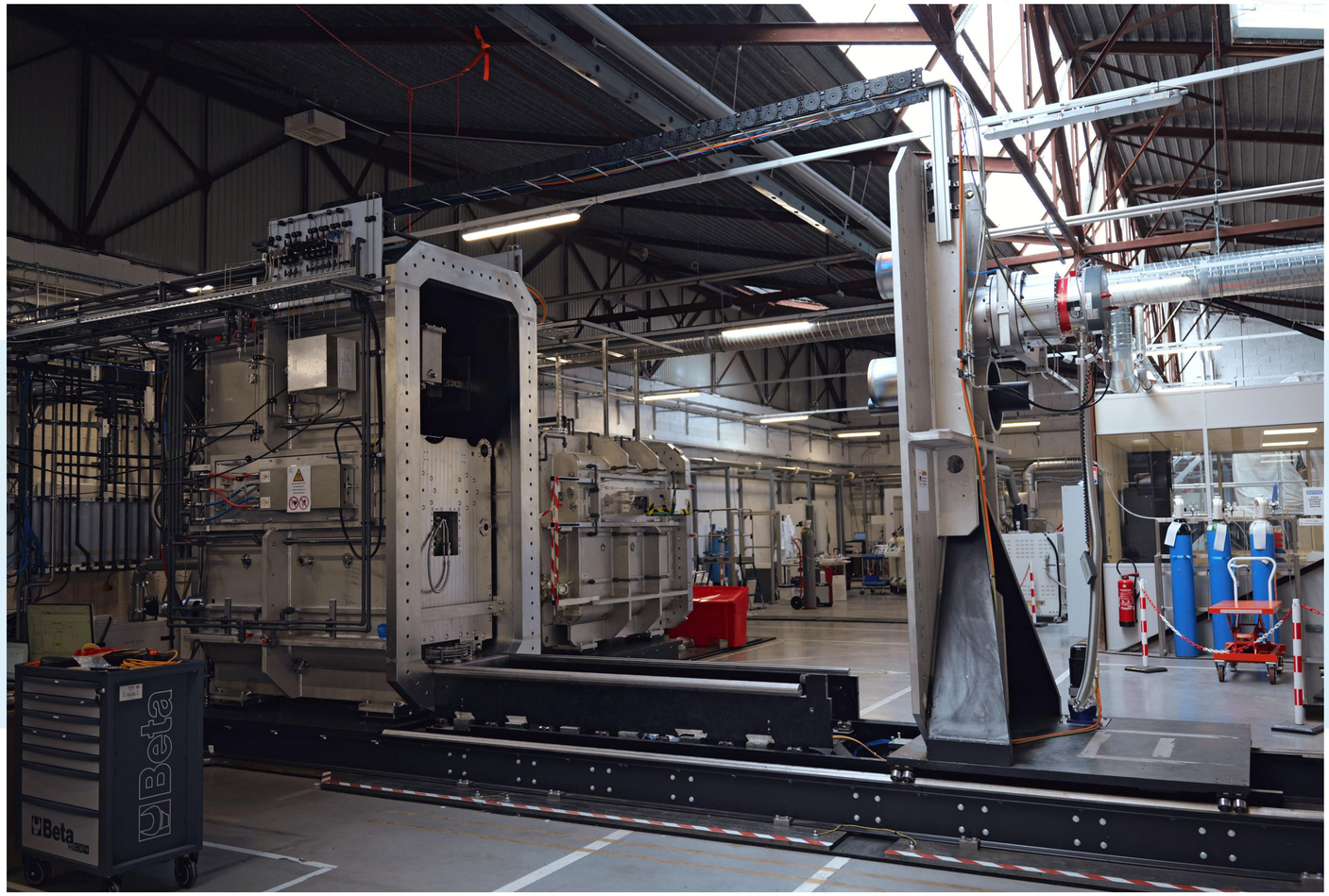
MOCVD

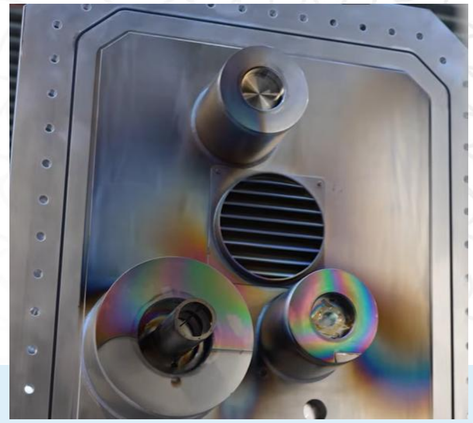
Game changer: We own the
manufacturing process to mass produce HTS tapes

Demonstrating HTS manufacturing at scale

Jan. 2026

- PVD Machine commissioning
- First depositions





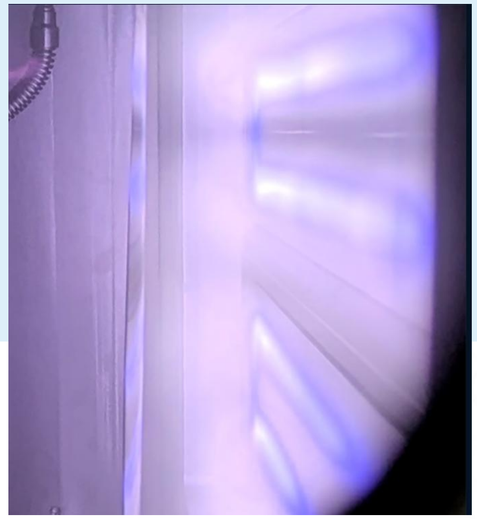


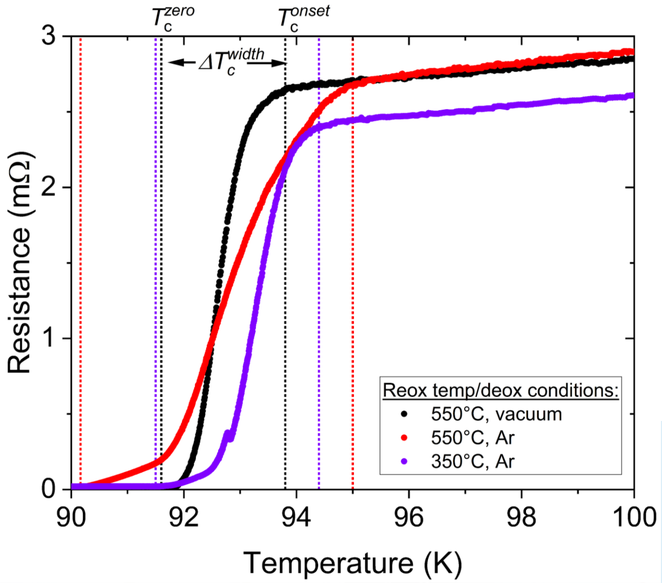
Image credit: Renaissance fusion

HTS tape buffer layers (Al_2O_3 and Y_2O_3) deposited on 24 cm wide hastelloy

Demonstrating HTS manufacturing at scale

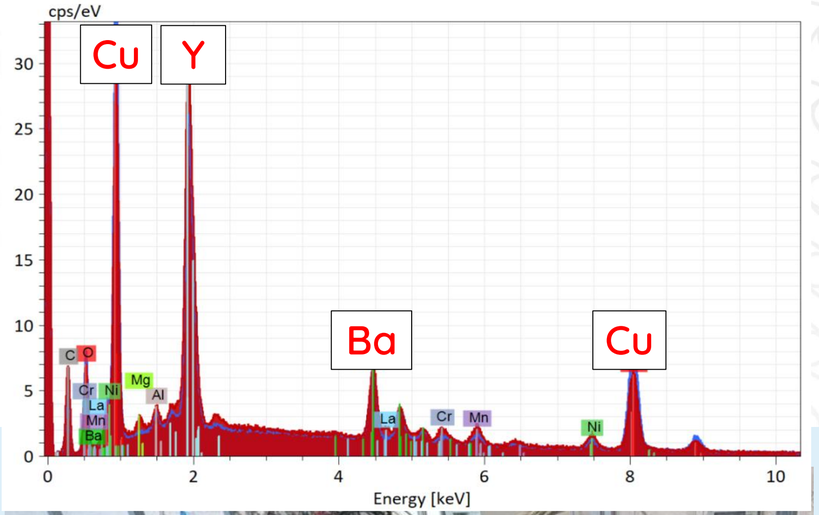
Feb. 2026

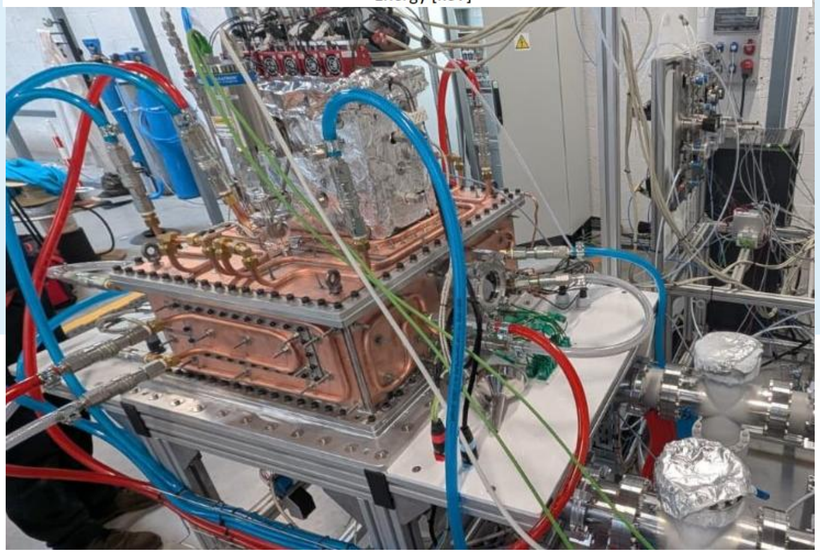
- Oxygen furnace commissioning
- “De + Re” Oxygenation of HTS tapes



Mar. 2026

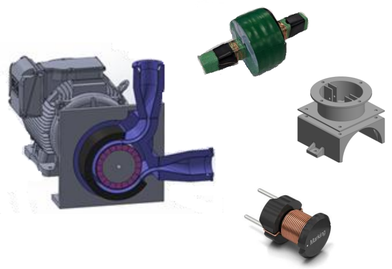
- MOCVD commissioning
- First YBCO depositions



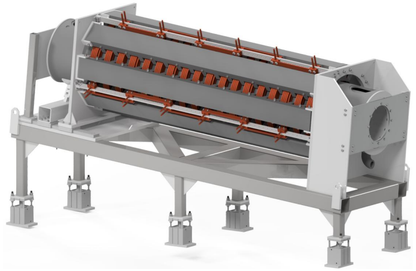


→ Full inline process validation to be completed in 2026!

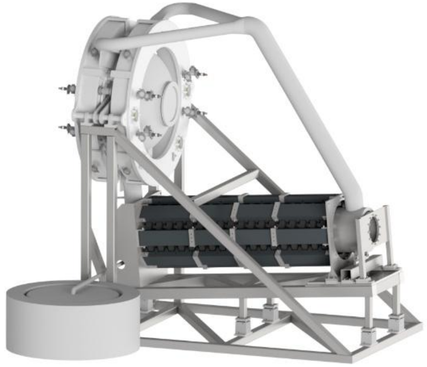
Enabler 2: Liquid metal technologies



Standalone liquid metal hardware



Subsystems with integrated control & diagnostics



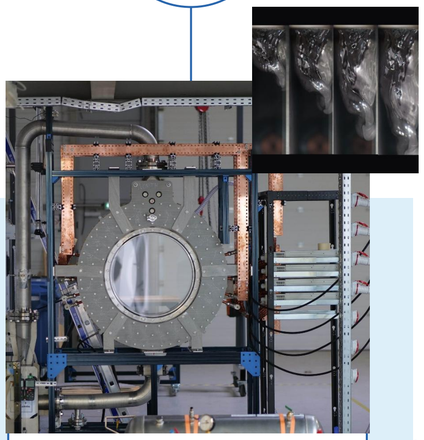
Turnkey liquid metal loops

Lithium isotopes

Value proposition

Liquid metal consistent milestones delivery

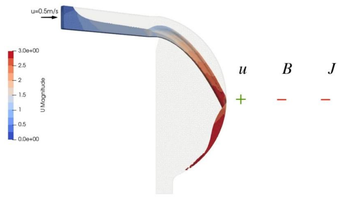
Jul. 2023



Liquid Metal Levitation

First meter-scale EM levitation

Dec. 2023



In-house MHD Code

3D free-surface validated

May 2025

ALIP Pump

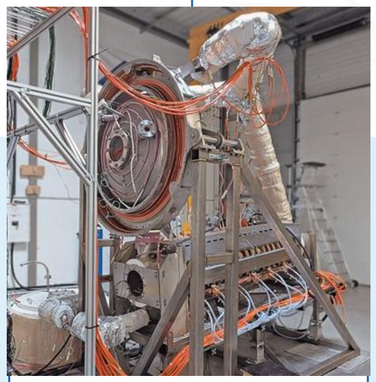
First large hot liquid metal pump

Jun. 2025

Freeze Valve

Validated flow stop

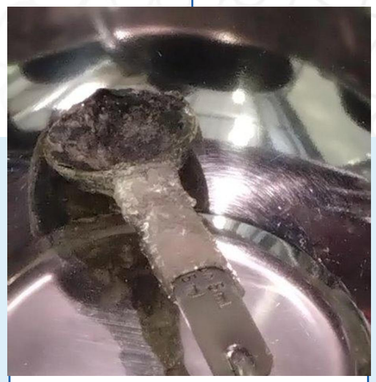
Oct. 2025



700°C Sn Loop

HTS + levitating liquid metal

Apr. 2026



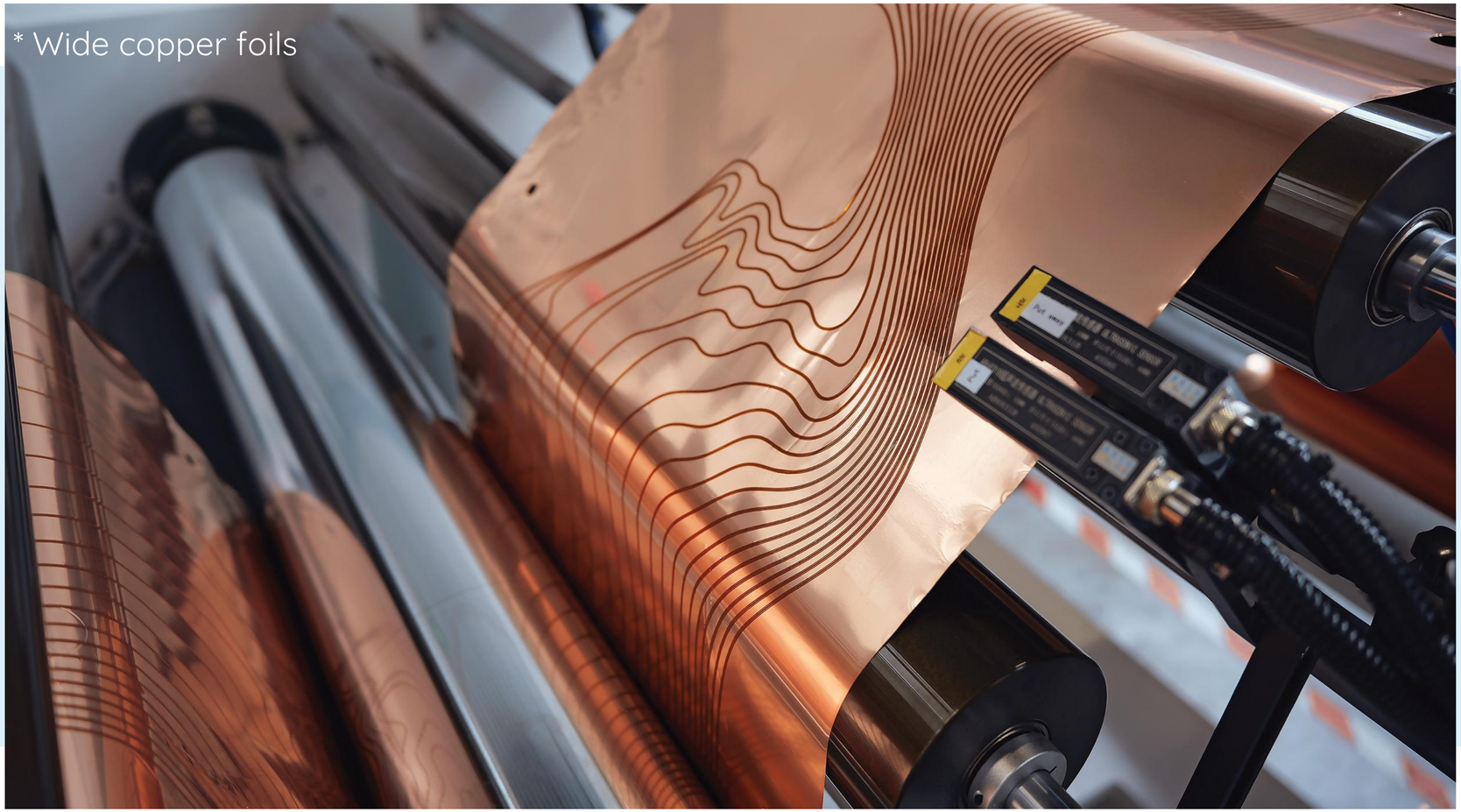
Li / LiH Separation

Toward fuel cycle & Li^6 enrichment

RF patent: WO2023194368A1

Enabler 3: engraved HTS magnets

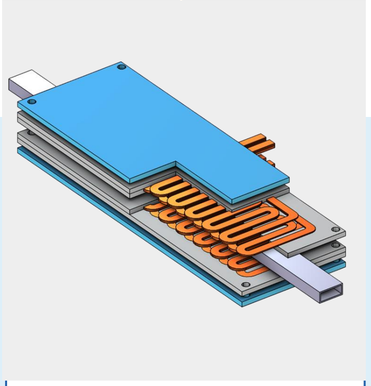
Custom developed laser machine



Engraved magnet

Engraved magnets consistent milestones delivery

May 2023



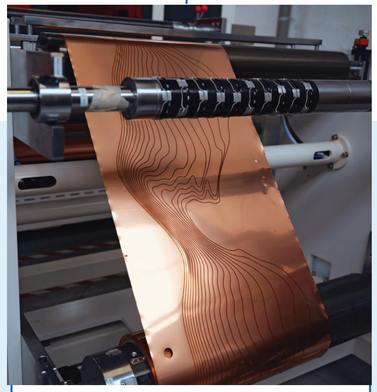
Undulator for synchrotrons

Feb. 2024

Magnet for Magnetic Resonance Imaging (MRI)

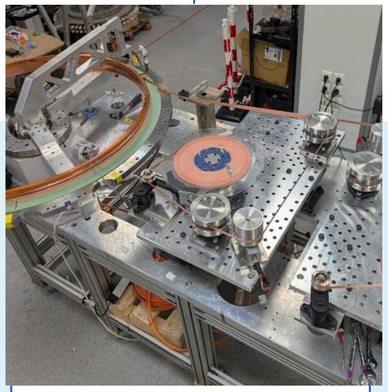
fidelity 99.996%

Sep. 2024



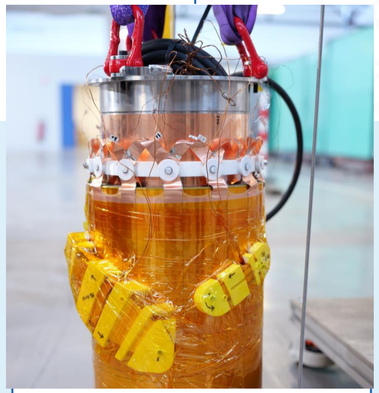
Custom laser machine

Jun. 2025



HTS winding machine

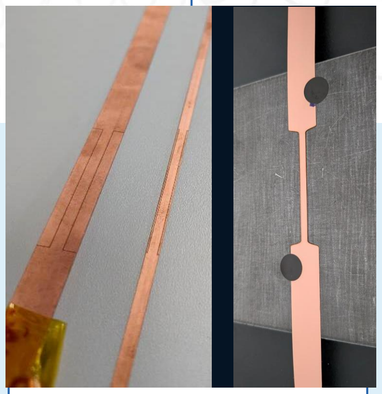
Nov. 2025



Stellarator magnetic field

fidelity 97%

Jan. 2026



Engraved and cut HTS tapes

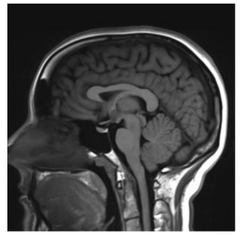
Profitable in 2028 from pre-fusion markets

Wide, engraved HTS

Automotive

Electricity

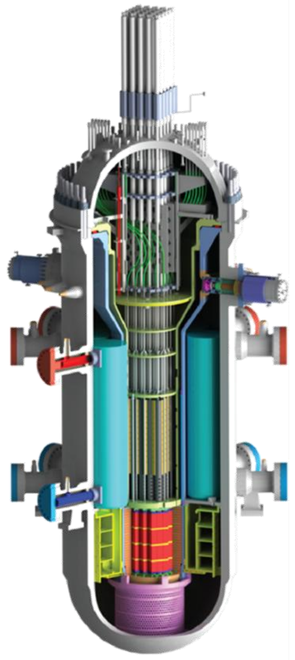
Wind



Medical

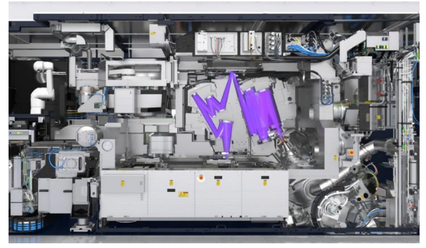
Aerospace

Control & enrichment of Liquid Metals

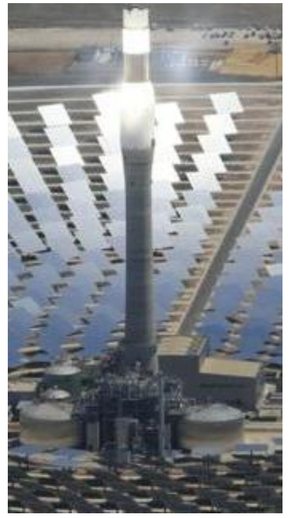


SMRs

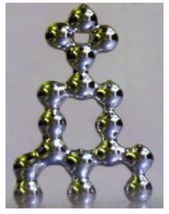
Cooling of Data Centers



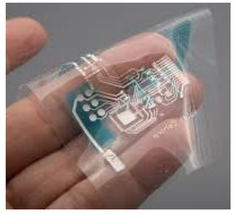
EUV Lithography



Concentrated Solar



3D Metal Printing



Wearable electronics

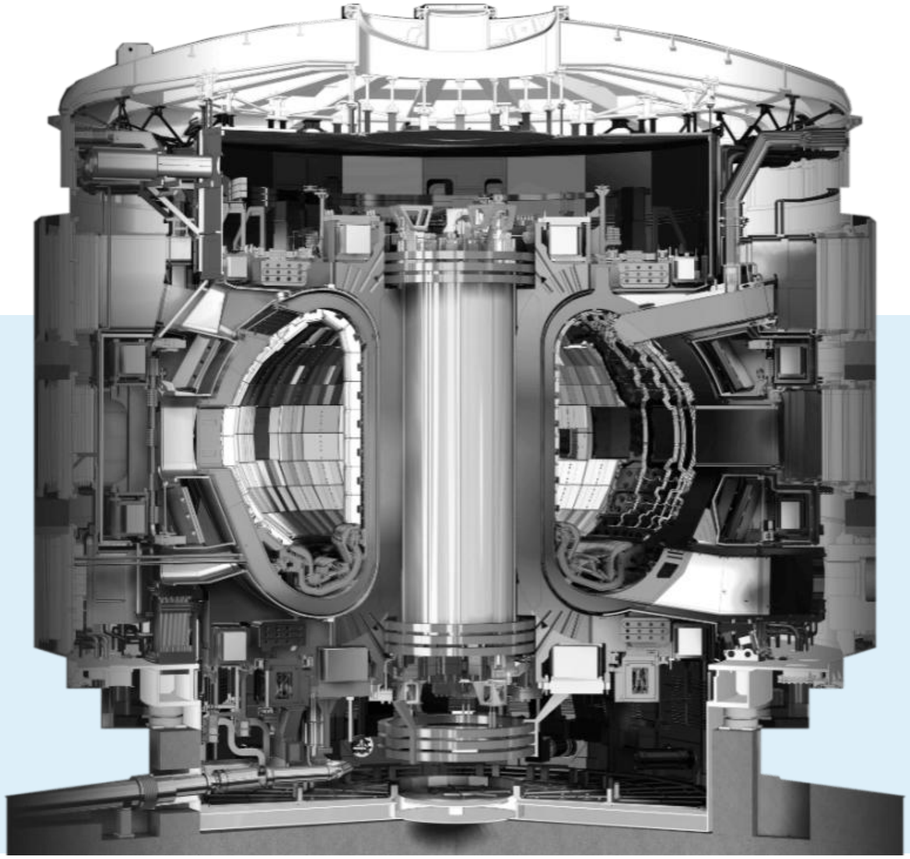
Soft Robotics

Step 2:

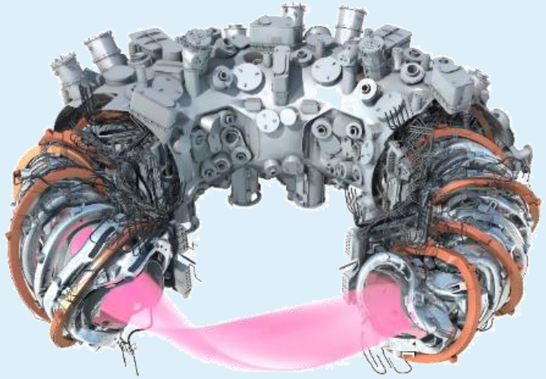
We industrialize stellarators

RENAISSANCE FUSION

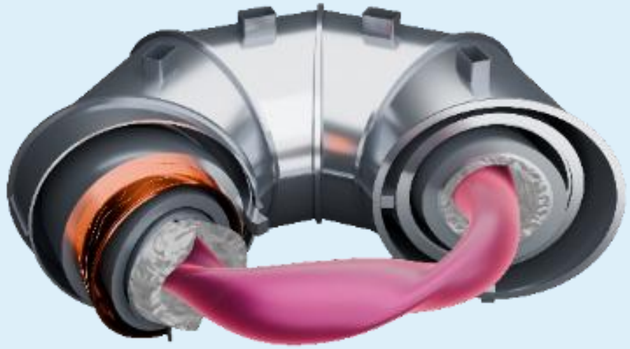
The vision: A fusion machine designed for simplicity and cost



- Reduced total cost of ownership (SpaceX, not NASA)
- Fewer parts, mass-produced (“Lego” of fusion)
- Rapid on-site assembly, lower cost-of-money
  (≈ solar vs. nuclear & other megaprojects)



RENAISSANCE FUSION



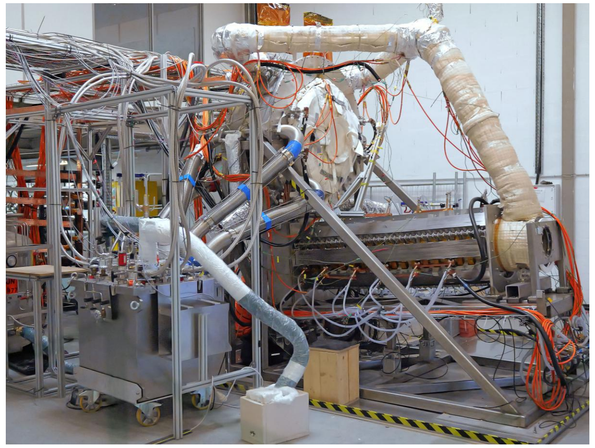
V. Prost, F. Volpe, *Nucl. Fusion* 2024

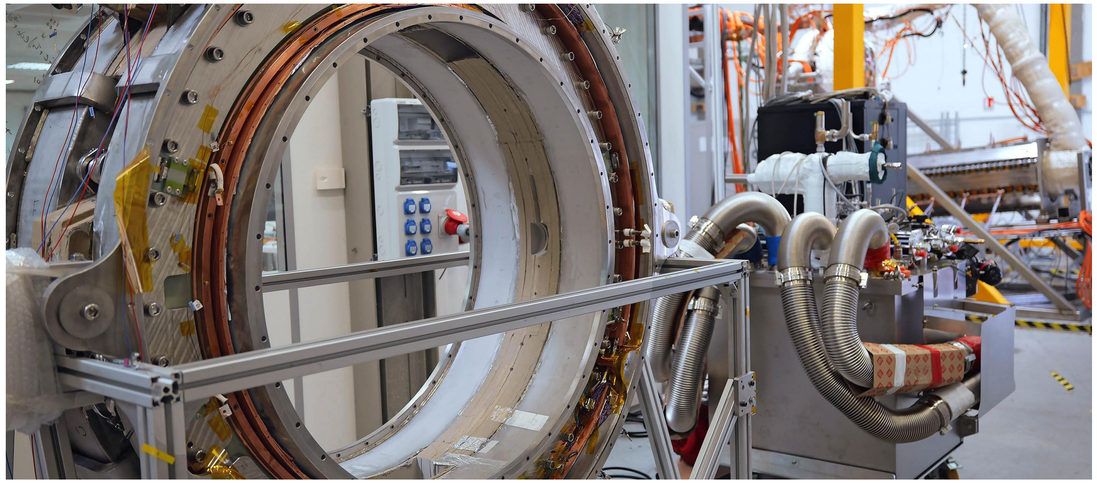
ITER (500 MW_{th})

Wendelstein 7-X

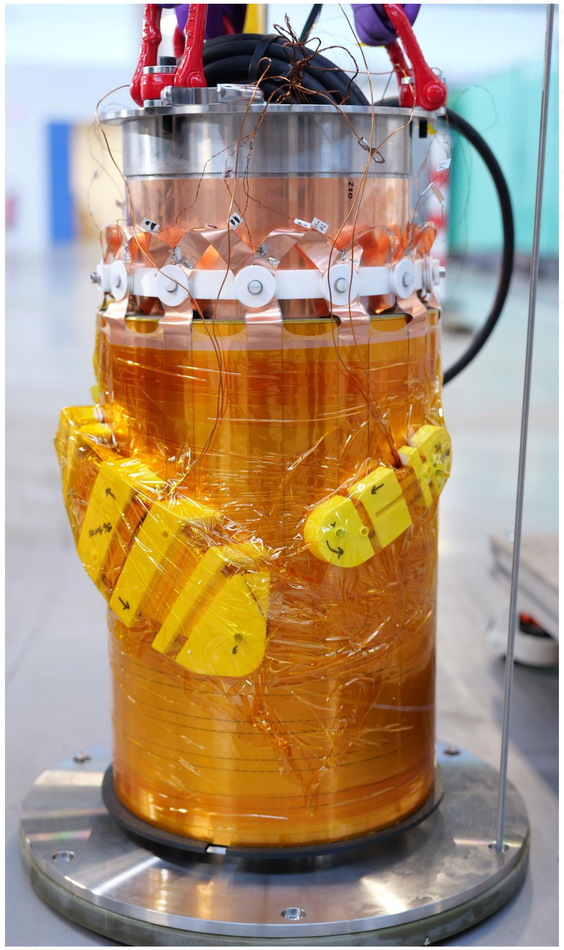
Chartreuse Pe (1 GW_e)

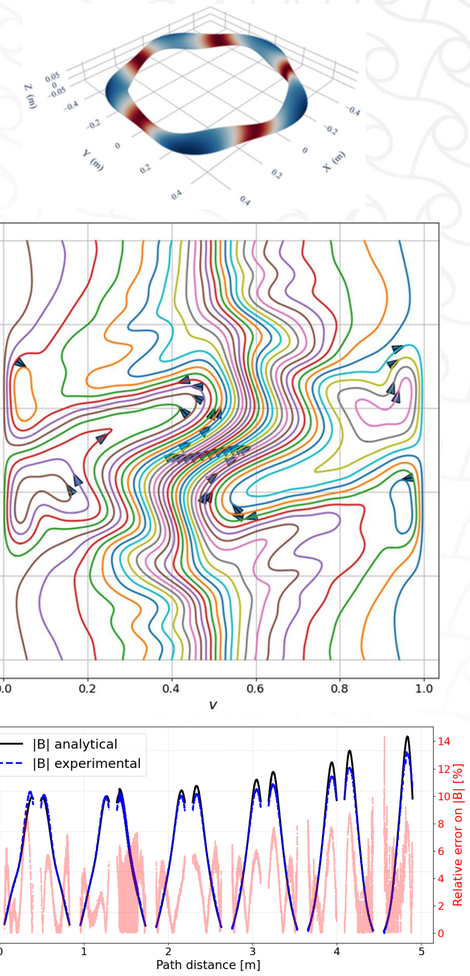
Demonstrated high field magnets and stellarator engraved coils





0.6T in liquid metal channel and 3.6 T
peak in a 1m bore 20K HTS magnet

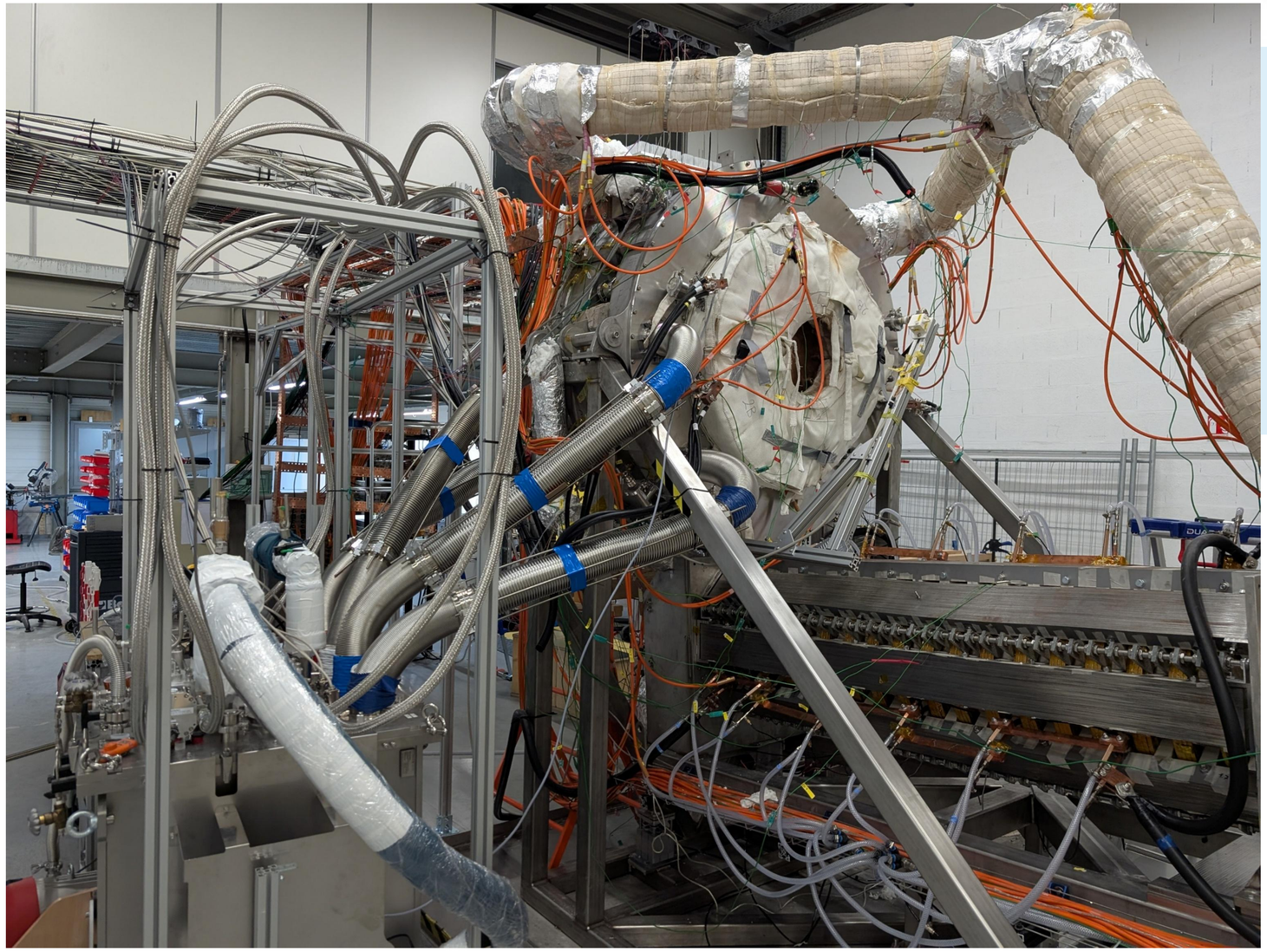


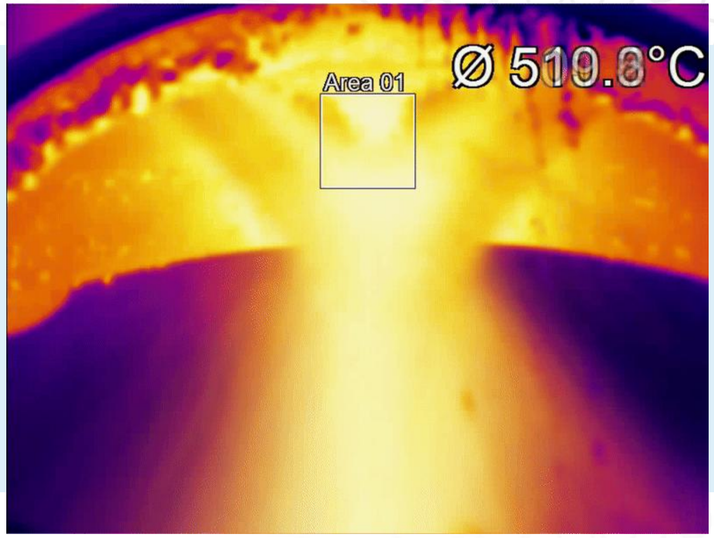


Replicated stellarator fields within
96.8% using simplified grooved coils

Our liquid metal and HTS magnet integration milestone

end 2025



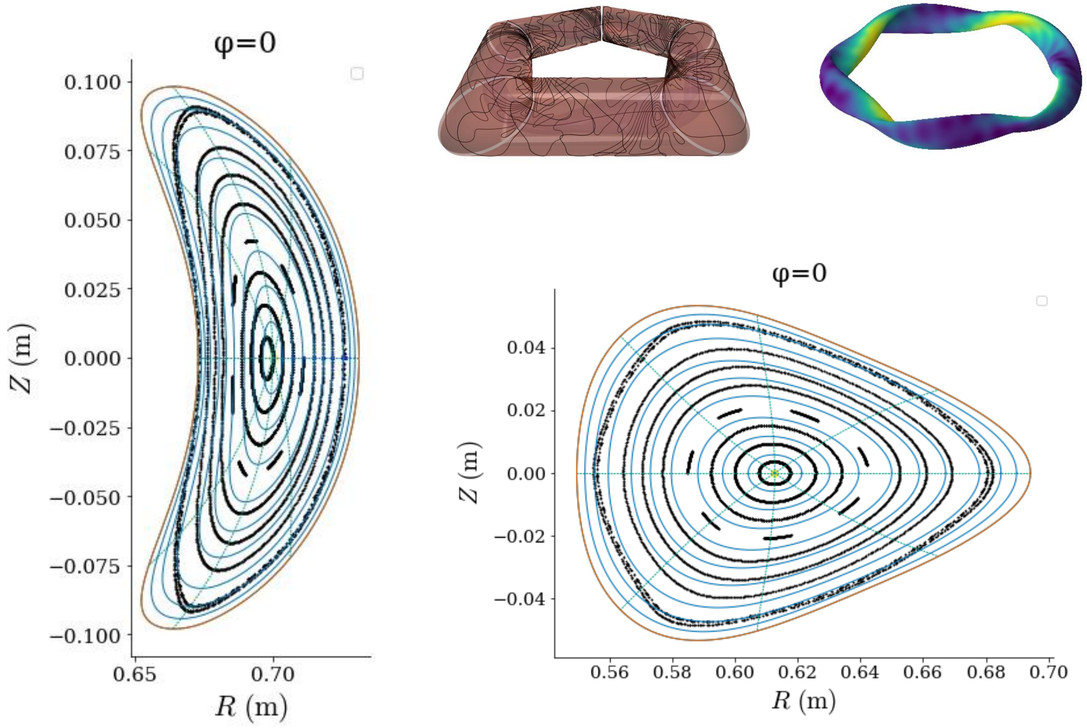


Outcomes:

- Successfully integrated 20K HTS magnets with 700°C Sn experiment
- Deflected Sn layers
- HTS quench resilient magnets 0.6T in LM channel and 3.6T peak

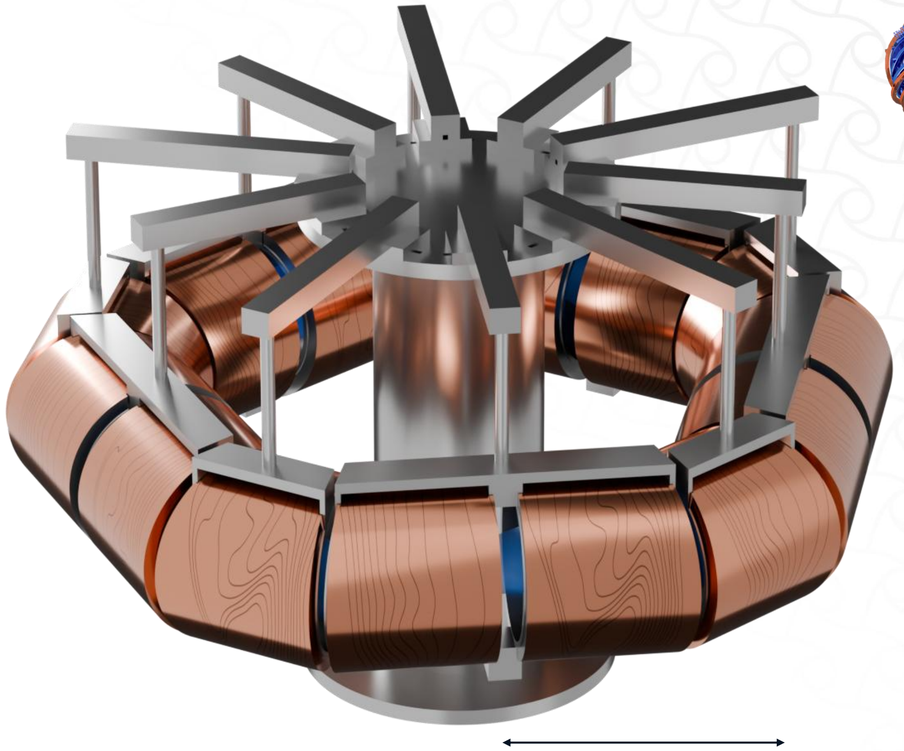
Accurate and simplified copper engraved stellarator

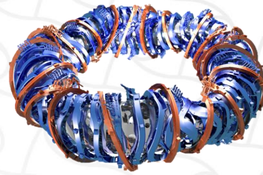
Optimized laser engravings replicate W7X-like magnetic fields



Patent pending and scientific publication

Experimental machine with plasma discharge





0.65 m

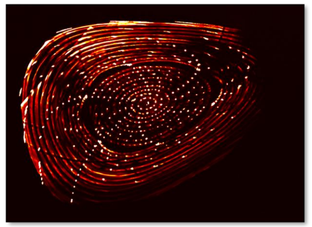


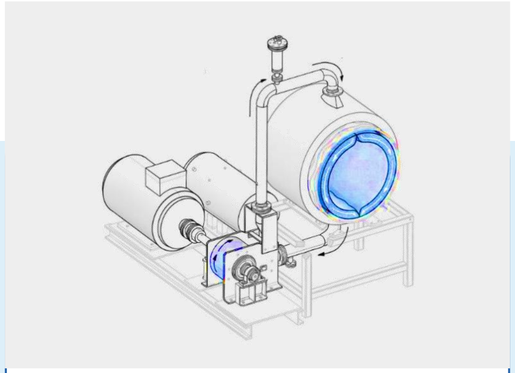
Image credit: Renaissance fusion

Photo credit: MPI für Plasmaphysik, Matthias Otte

The road to our grid-connected power plant

1

Tech development & integration



“Skyfall Stellarator”

Module, 1 m long, 1 m diam.

2027

2

Integration de-risking (confinement, plasma-wall interaction)

“Chartreuse S”

2 m radius, 5 Tesla field

3

Net heat, $Q \gg 1$

“Chartreuse Ph”

10 Tesla, 10 MW input, 200 MW_{th} output

4

Net electricity

Image generated by Renaissance Fusion & AI.

“Chartreuse Pe”

Same device, upgraded to 20 MW input → 2 GW_{th}

2035

Stellarators meet the Netherlands

RENAISSANCE FUSION

Where Renaissance Fusion meets the Netherlands

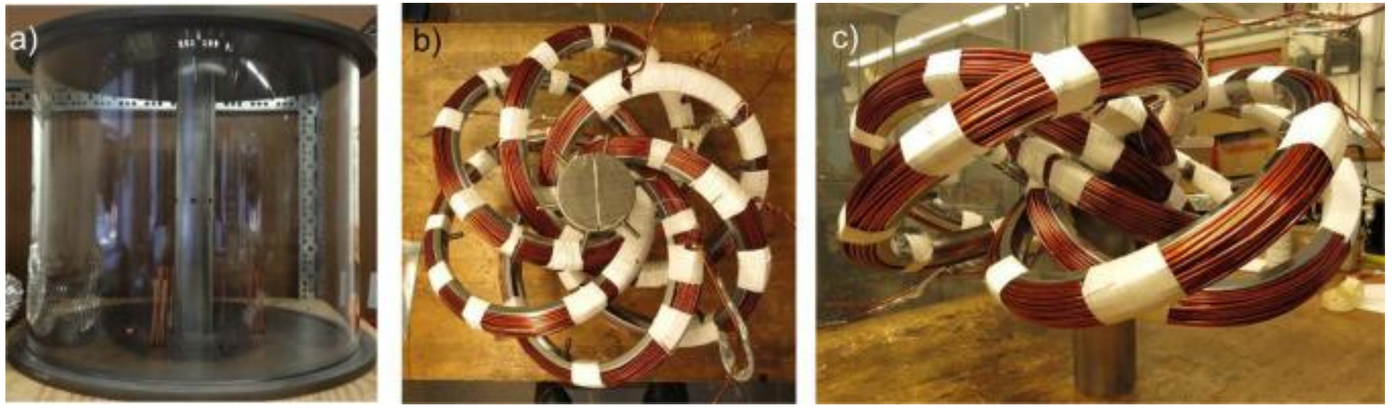
DEMCON

TU/e

VDL

And more !!!

DIFFER



“Circus stellarator”, previous collaboration with Francesco VOLPE

We are looking for sites to industrialize fusion

Image generated by AI.

What’s next

RENAISSANCE FUSION

Sealing key industrial & strategic deals

Reactor Design

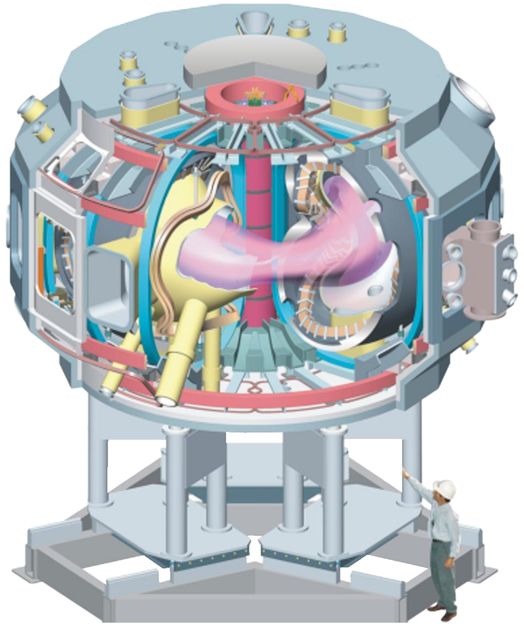


Image credit: Princeton Plasma Physics Laboratory

Fusion Site

Image generated by AI.

HTS Factory

Image generated by AI.

University Partnerships

Image credit: Renaissance fusion - Adobe Stock

Thank you! Questions?

Victor PROST
Head of Stellarator Design

Francesco VOLPE
CTO & Founder

Giorgio MARIANO
Head of Investor Relations

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