

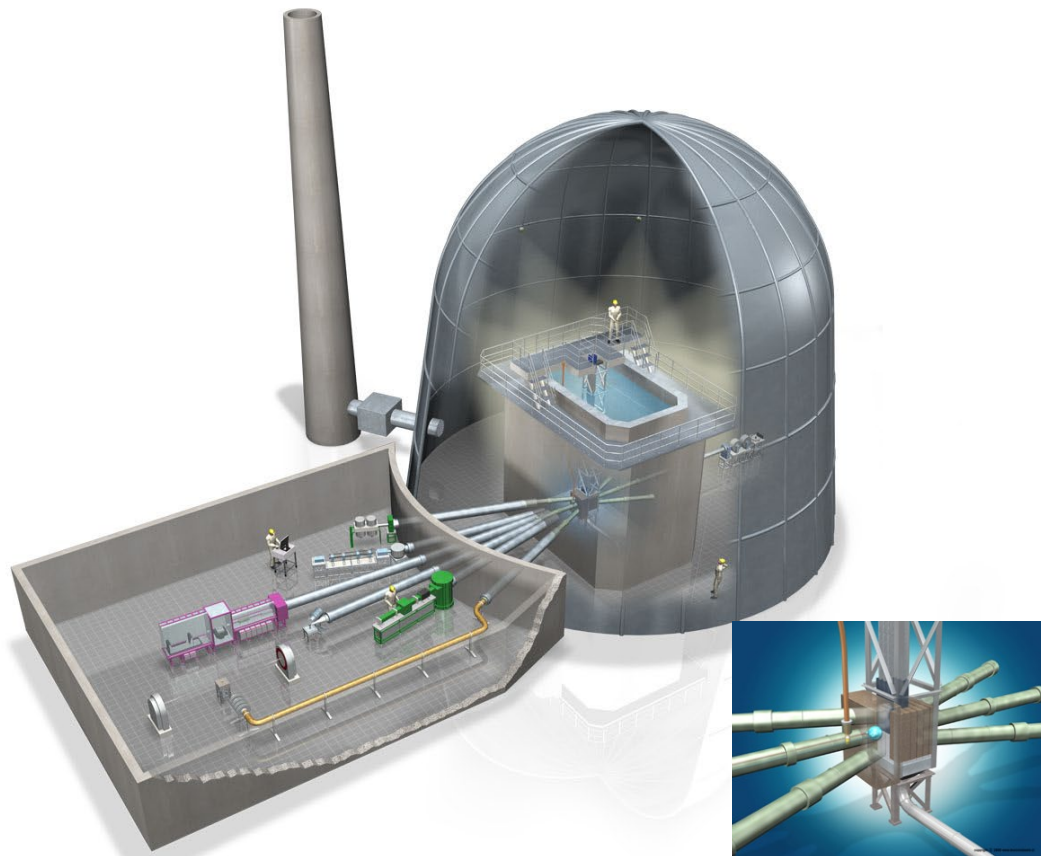
TU Delft Reactor Institute



Facts & Figures

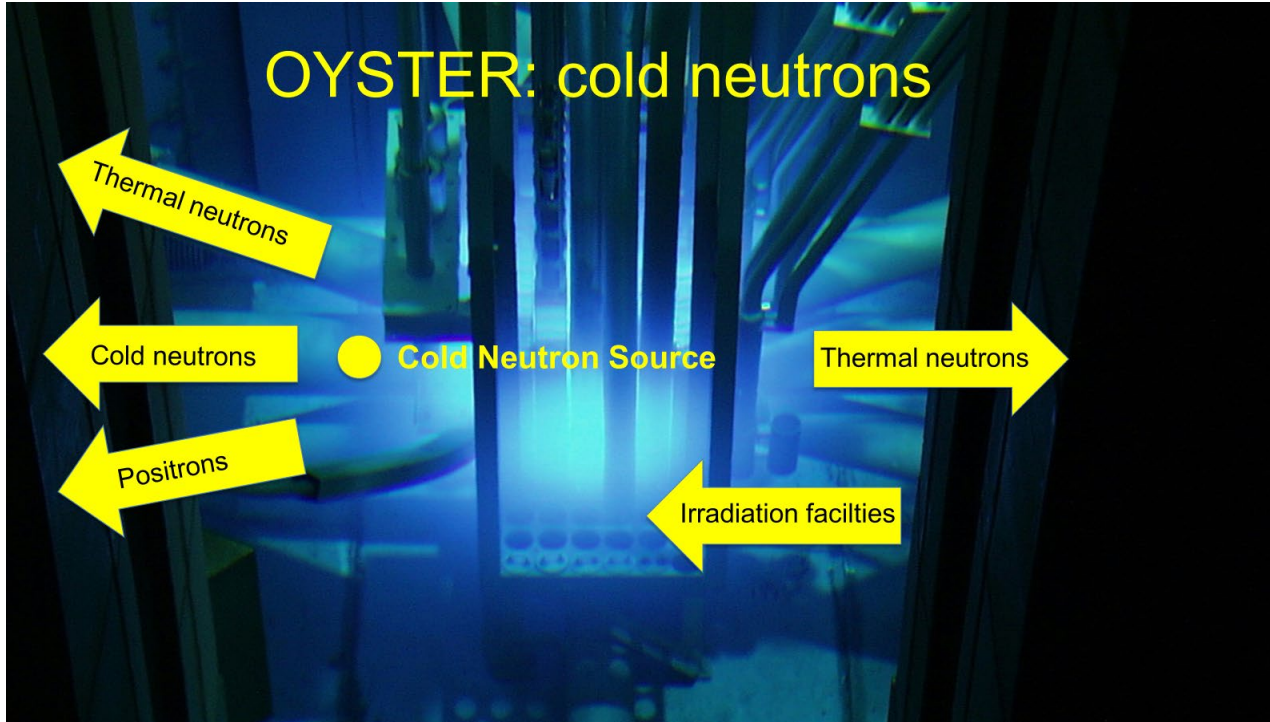
▪ Employees (fte)	180
▪ PhD students & PostDocs	70
▪ Graduate students (MSc)	70
▪ Learners radiation courses	1000





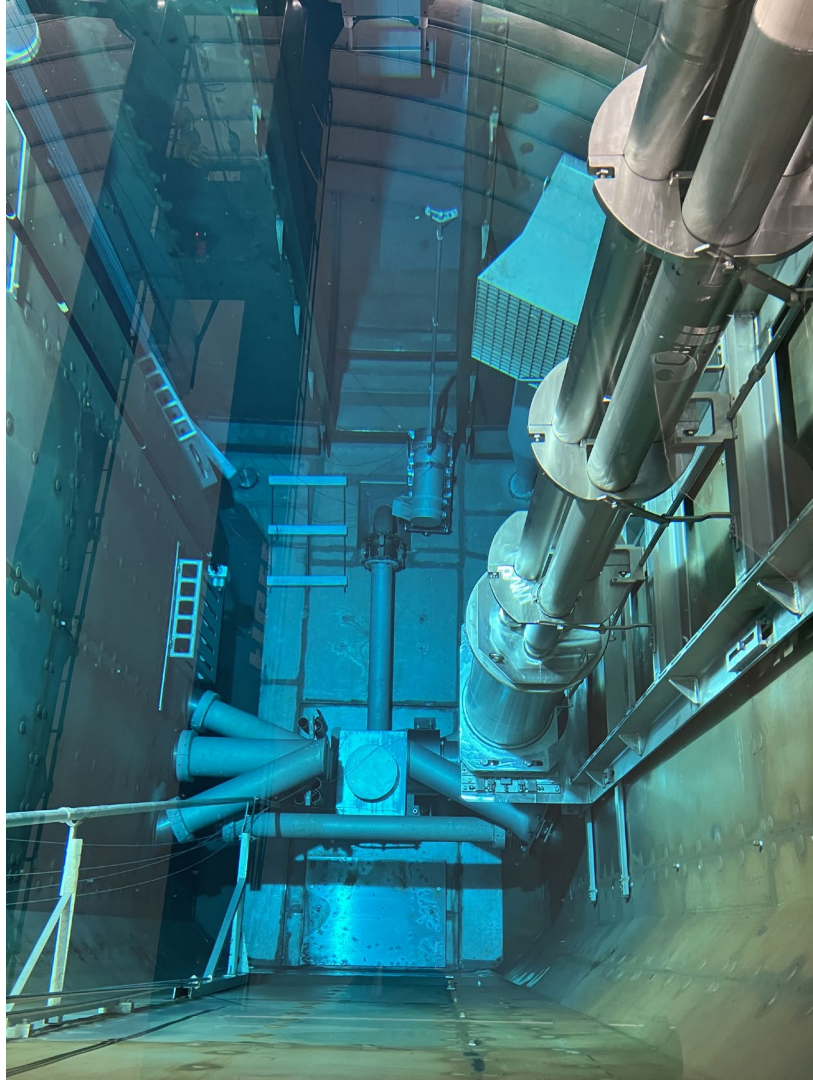
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OYSTER: cold neutrons

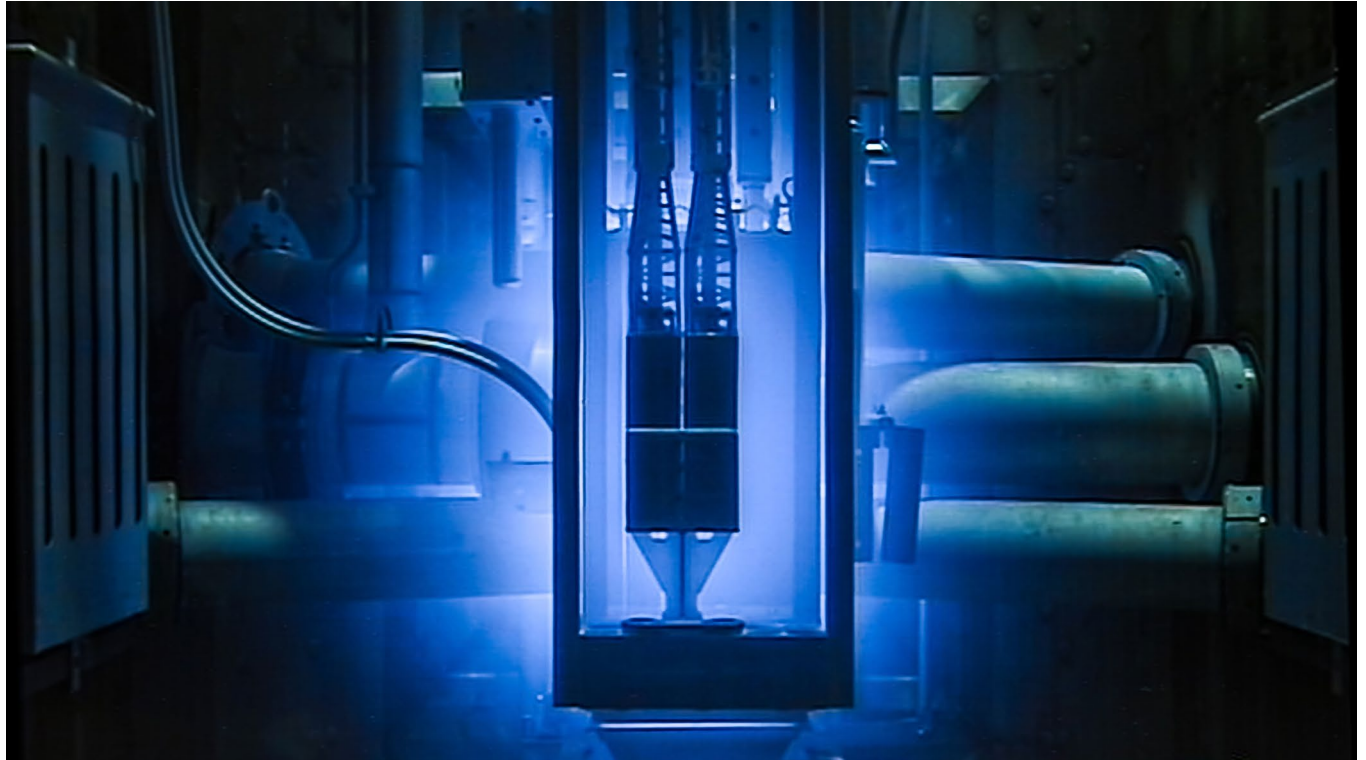








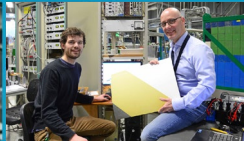

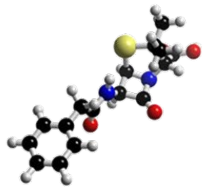
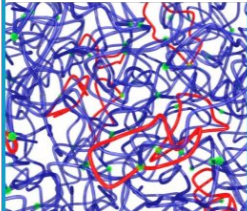
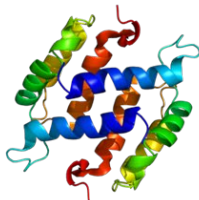
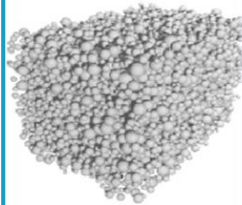
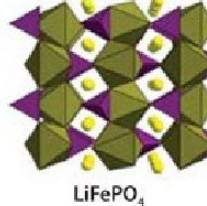





TU Delft research reactor core



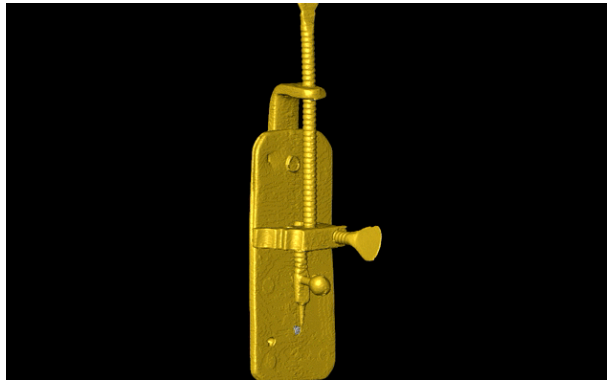
Neutron instruments

PEARL	ROG	SANS	SESANS	NDP	FISH
					
1 nm	100 nm	100 nm	10 μ m	1 mm	10 cm
Molecules	Polymers	Proteins	Colloids	Solids	Objects
				 LiFePO_4	

Neutron radiography and tomography



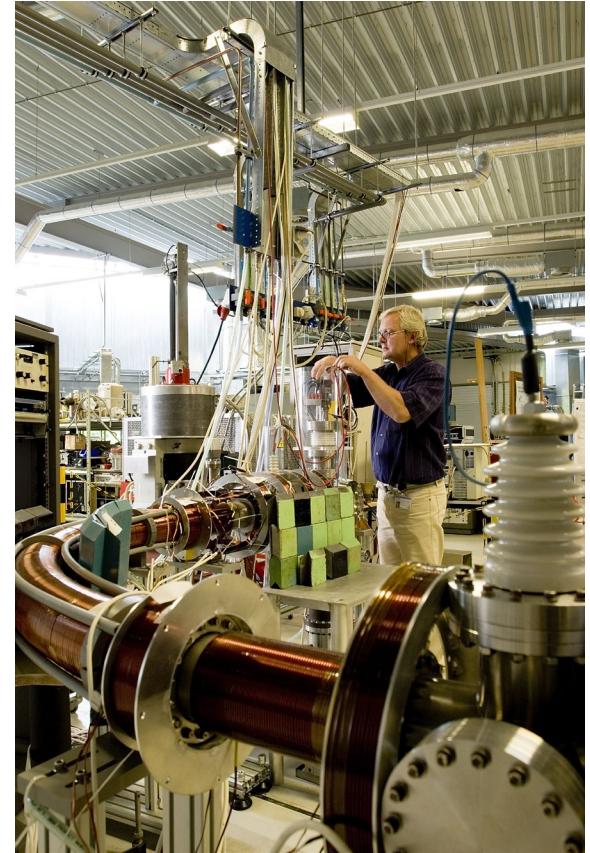
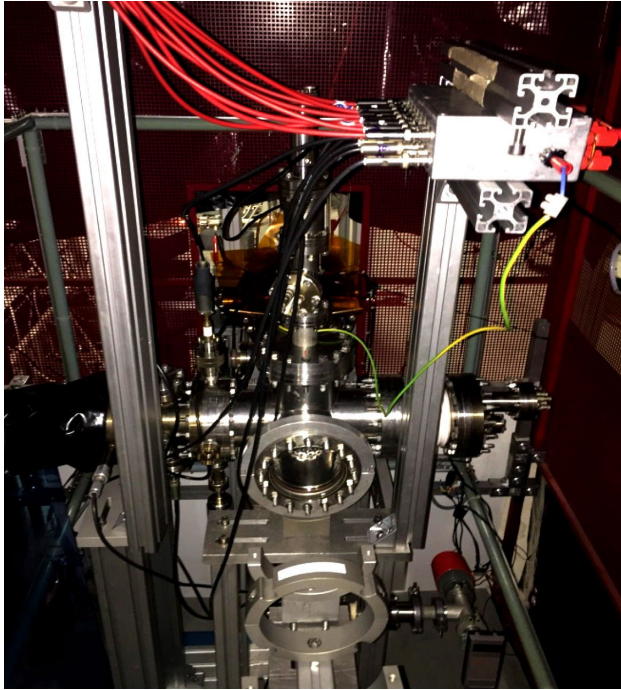
Structure analysis length-scale 50 μm to cm level



Boerhaave museum



Positrons

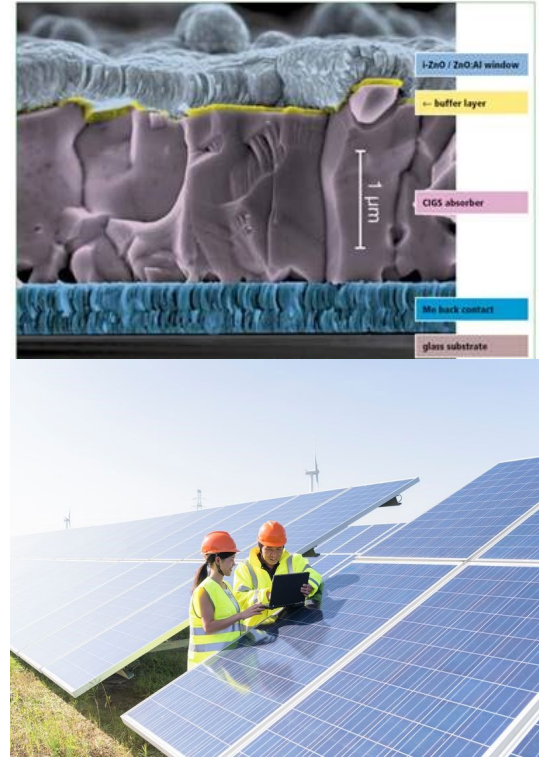


Innovative materials for Energy

Identifying defects and their concentrations in sustainable energy materials like solar cells using POSITRONS

Research examples:

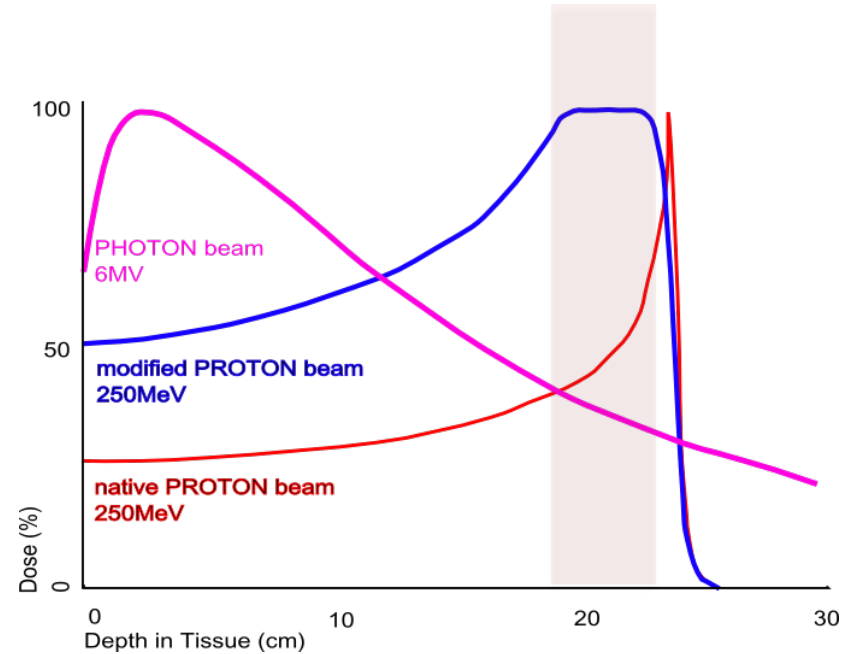
- ZnO/CIGS solar cells
- Perovskite-based solar cells
- Energy storage mediums like lithium and hydrogen
- Photovoltaics



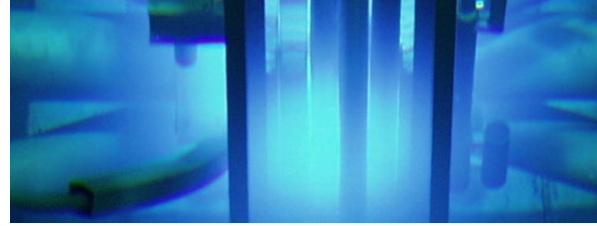
Protons



External radiation therapy with protons

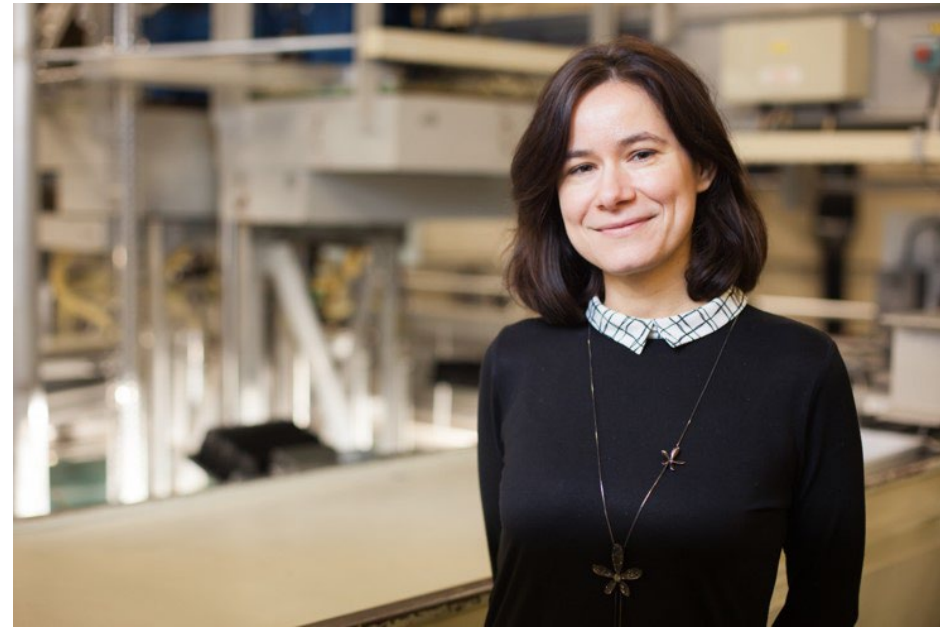
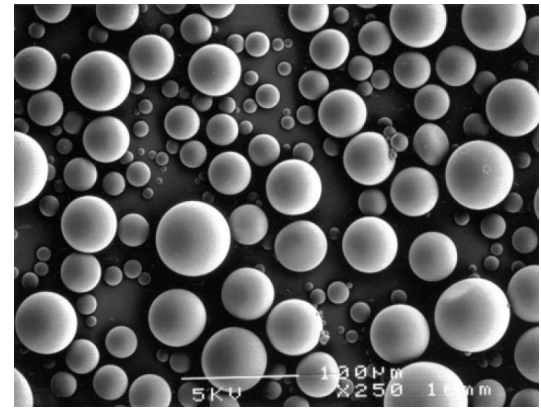


Radionuclides

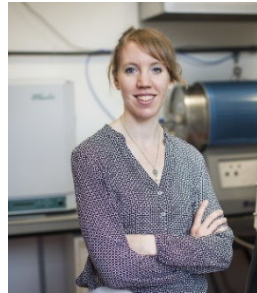
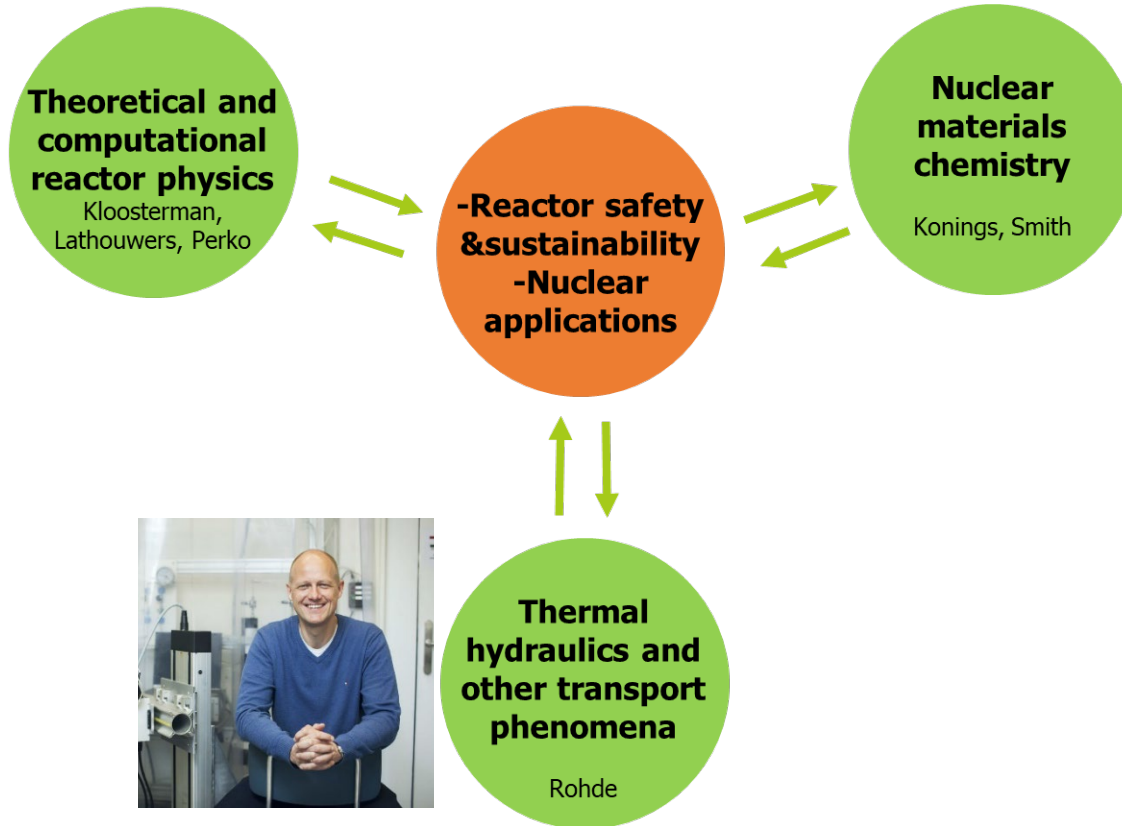


Internal radiation therapy with radionuclides

- A flexible irradiation facility for producing medical isotopes
- Main advantages:
 - The microspheres can be loaded with more radioactivity.
 - There is a longer time span to get the end product in the hospital where it can be delivered to the patient.



Nuclear technology



Nuclear landscape Netherlands

- Pallas isotope production reactor



- 2 large nuclear power plants 1-1,5 GWe
- Later on, 2 other NPPs and/or SMR

New position Radiation Bio-dosimetry

- As Professor in Radiation Bio-dosimetry your research focus entails the exploration of **radiation effects on humans** using advanced computational and/or experimental techniques. You will develop and apply **radiation dosimetry at the molecular scale** and advance the fundamental understanding of **interaction of ionizing radiation with living matter**. These novel dosimetry methods should be applicable in the fields of nuclear medicine, external beam therapy or health physics. In addition, you will provide expertise and leadership in advancing radiation dosimetry in the Netherlands and contribute to international collaborations. At TU Delft, you'll have access to a diverse range of radiation sources and the opportunity to collaborate closely with industry and government partners. TU Delft offers a wide range of radiation sources and has close collaboration with medical centres such as HollandPTC, ErasmusMC and others, contributing expertise

New position Nuclear Reactor Physics

- We seek a research fellow driven to advance the safety, sustainability and reliability of nuclear energy. You will develop theoretical knowledge of nuclear reactor physics and apply this in modern numerical methods and codes. By combining advanced **multi-physics** methods and other **calculation techniques** you push the limits on the useful **information** you can extract from nuclear reactors. The impact of your work is improved safety and reliability of nuclear energy. Examples of calculation techniques used are machine learning, uncertainty analysis, reduced-order modelling and statistical methods.
- In addition, you will provide expertise and leadership in advancing nuclear reactor physics in the Netherlands and contribute to international collaborations. TU Delft offers a wide range of radiation sources and has close collaboration with partners from industry and government.
- You get the opportunity to become the leading expert in this field and take responsibility in educating reactor physicists in the Netherlands at the highest level.

Programme IMORN-31

Day		
Monday	Tutorials	
Mon evening	Dinner (the Post Office @ 19:00)	
Tue morning	Reactor noise small reactors	
Tue afternoon	Pulse counting methods	
Wednesday	Reactor noise power reactors	
Wed afternoon	Excursion TU Delft reactor	
Wed evening	Drinks in 't Koepeltje	
Thursday morning	Vibration modeling, AI methods	