

**DECTRIS**

# **From Dark Matter to Product Manager** ... and some lessons I learnt along the way

**Daniel Mayani**

04.07.2024

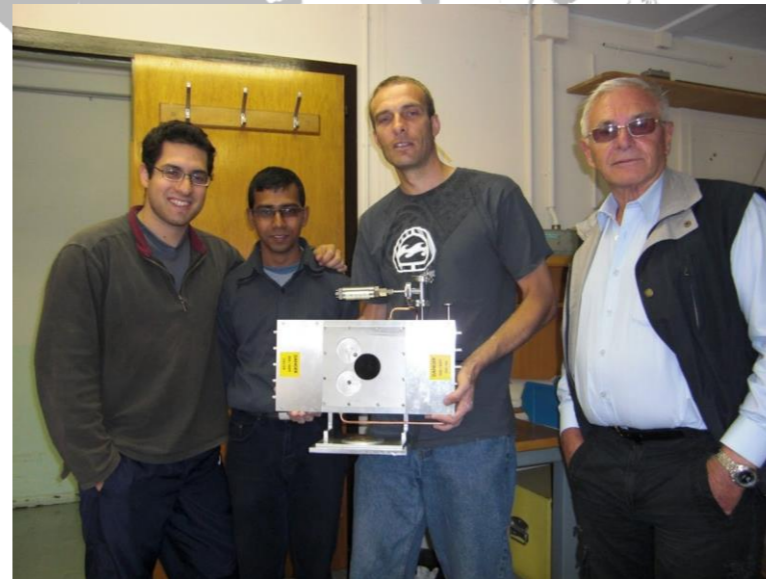
# At a Crossroads



# Let's start a bit further back...



# A Great Opportunity



# PhD and Invisibles in 2012



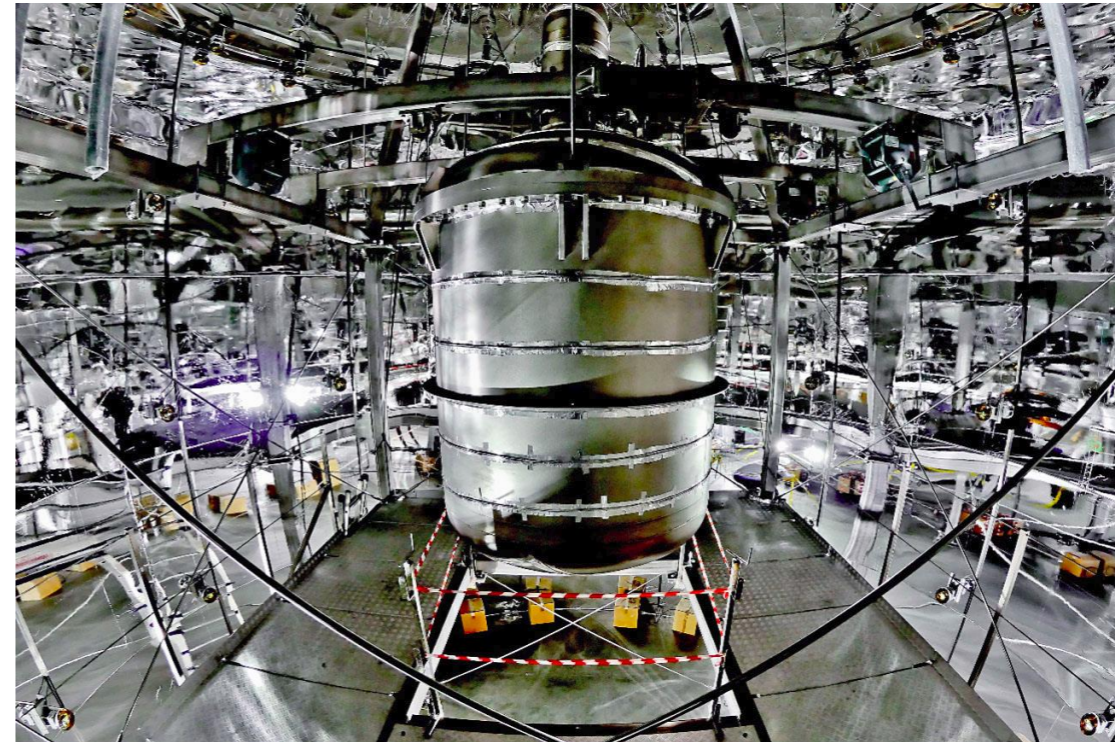
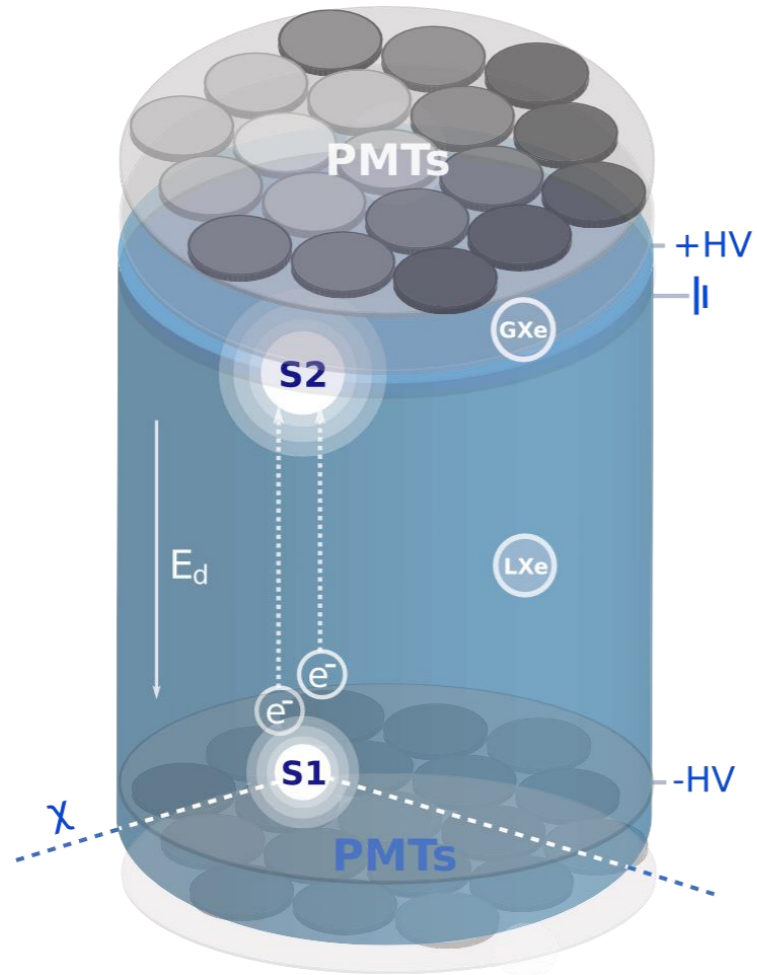
**inVisibles**  
neutrinos, dark matter & dark energy physics

**Xe**  
**XENON**  
Dark Matter Project

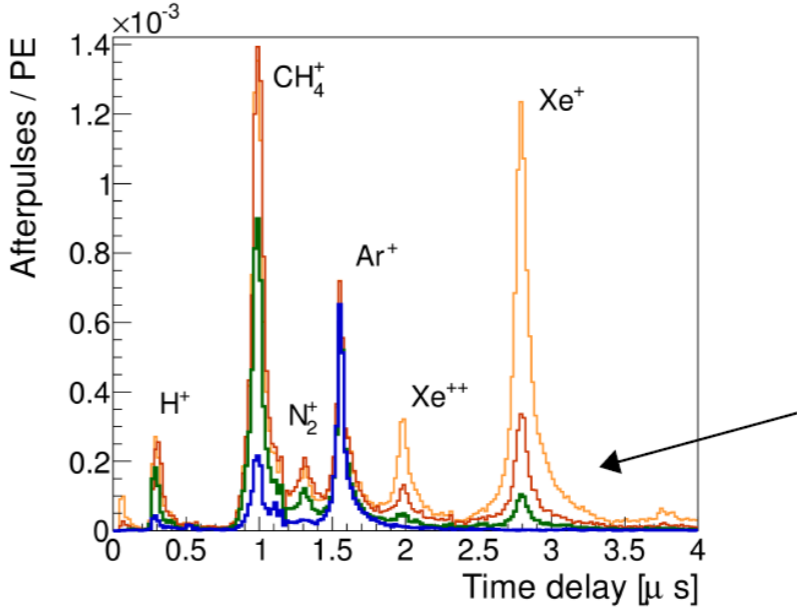
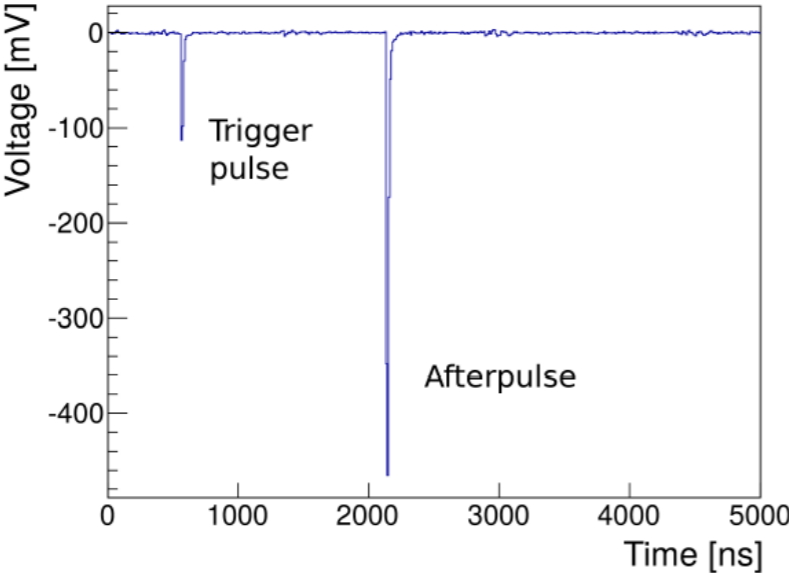
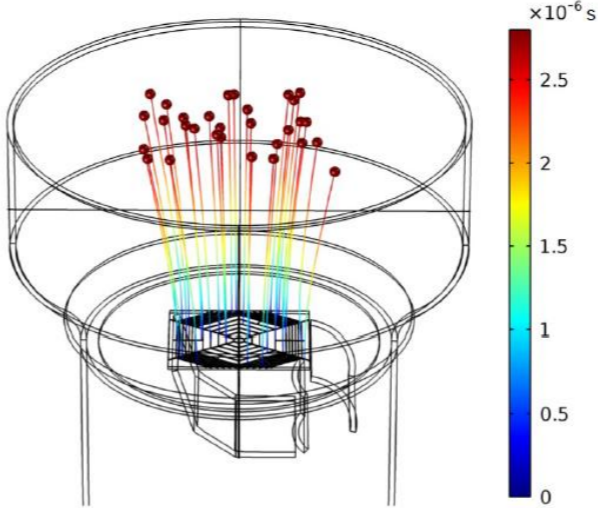
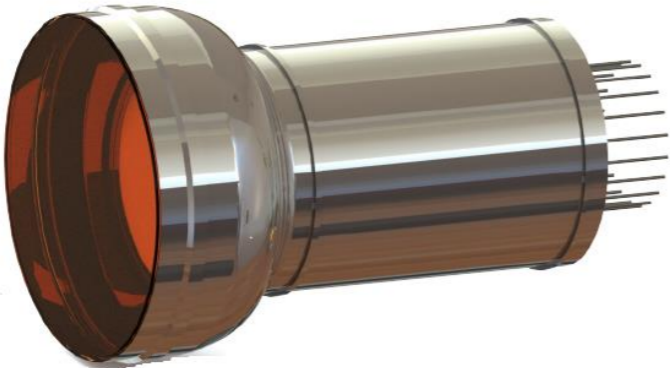


**Universität**  
**Zürich**<sup>UZH</sup>

# The XENON1T Dark Matter Experiment



# Afterpulses in Photomultiplier Tubes

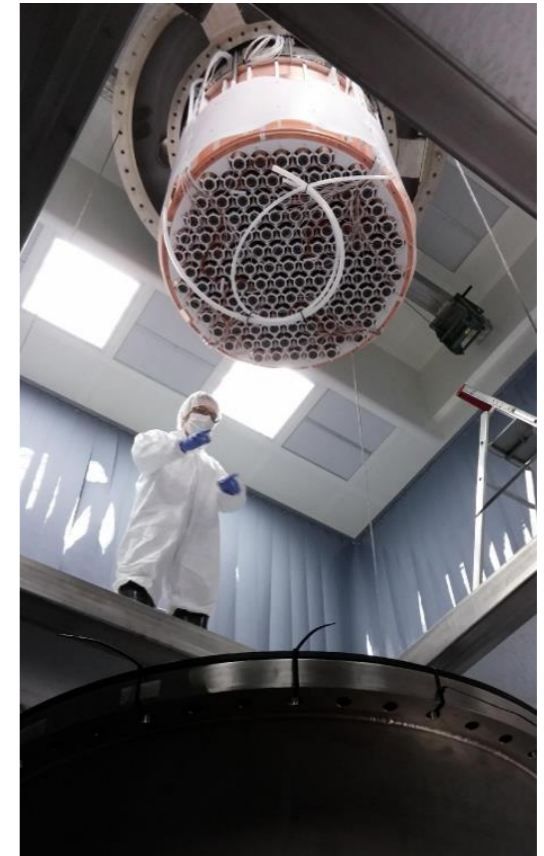


# Secondment at **HAMAMATSU**, Japan





# XENON1T Commissioning @ LNGS, Italy



# INTERLUDE

# What did I do in between?

2012 – Before the PhD



2017 – After the PhD



CommuniTipp

The Online Prediction Gaming Community

STARTUP CAMPUS  
CTI Entrepreneurship Training  
Zurich - Eastern Switzerland

## 2018 World Cup knockout stage



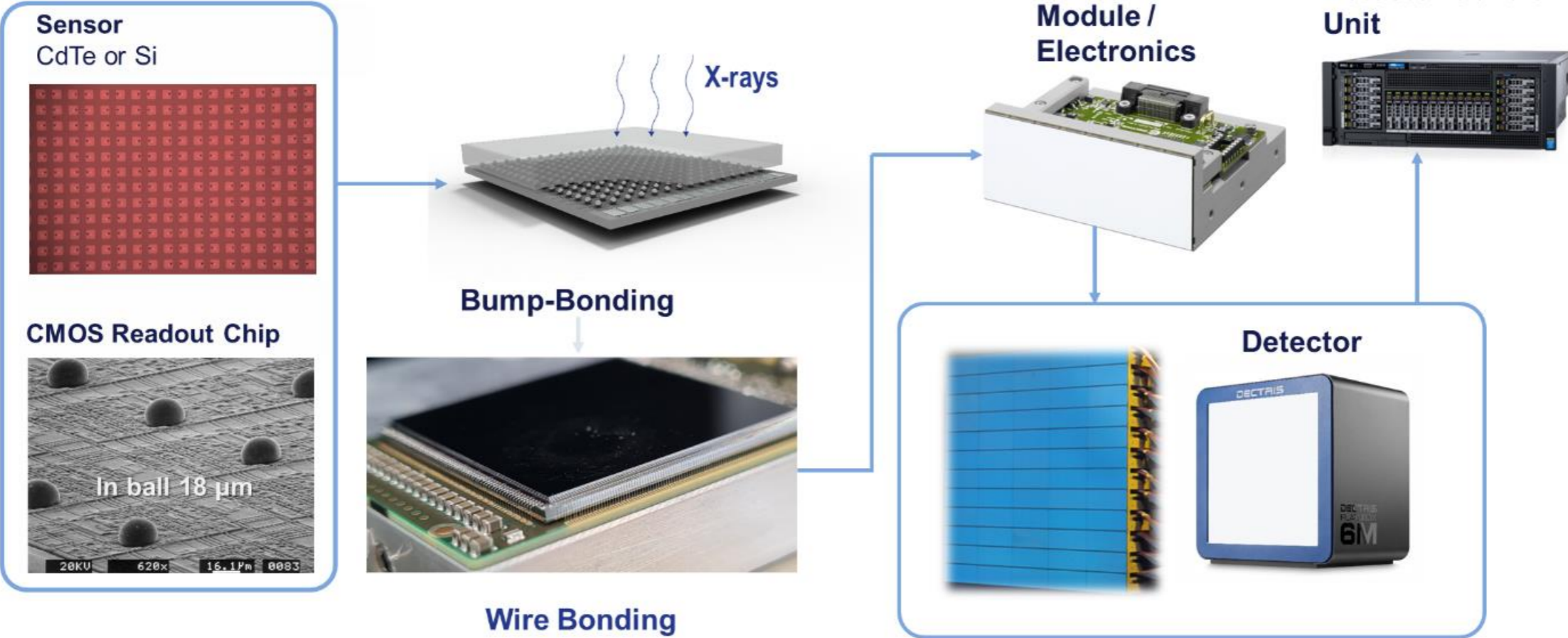
# From Academia to Industry

# DECTRIS

detecting the future



# Hybrid Pixel Detectors





# DECTRIS Worldwide

- ★ Headquarters in Baden (Switzerland)
- Subsidiaries in Philadelphia (USA) and Himeji (Japan)
- Distributors in China, India and Taiwan





# Field Systems Engineer - 2017





# Synchrotrons

- Large national and international research facilities
- Cutting-edge basic and applied research
- Users from different fields
- Multiple beamlines per synchrotron



**SLS** - Switzerland



**APS** - United States



**NSRRC** - Taiwan



**SSRF** - Shanghai



**SPring-8** - Japan

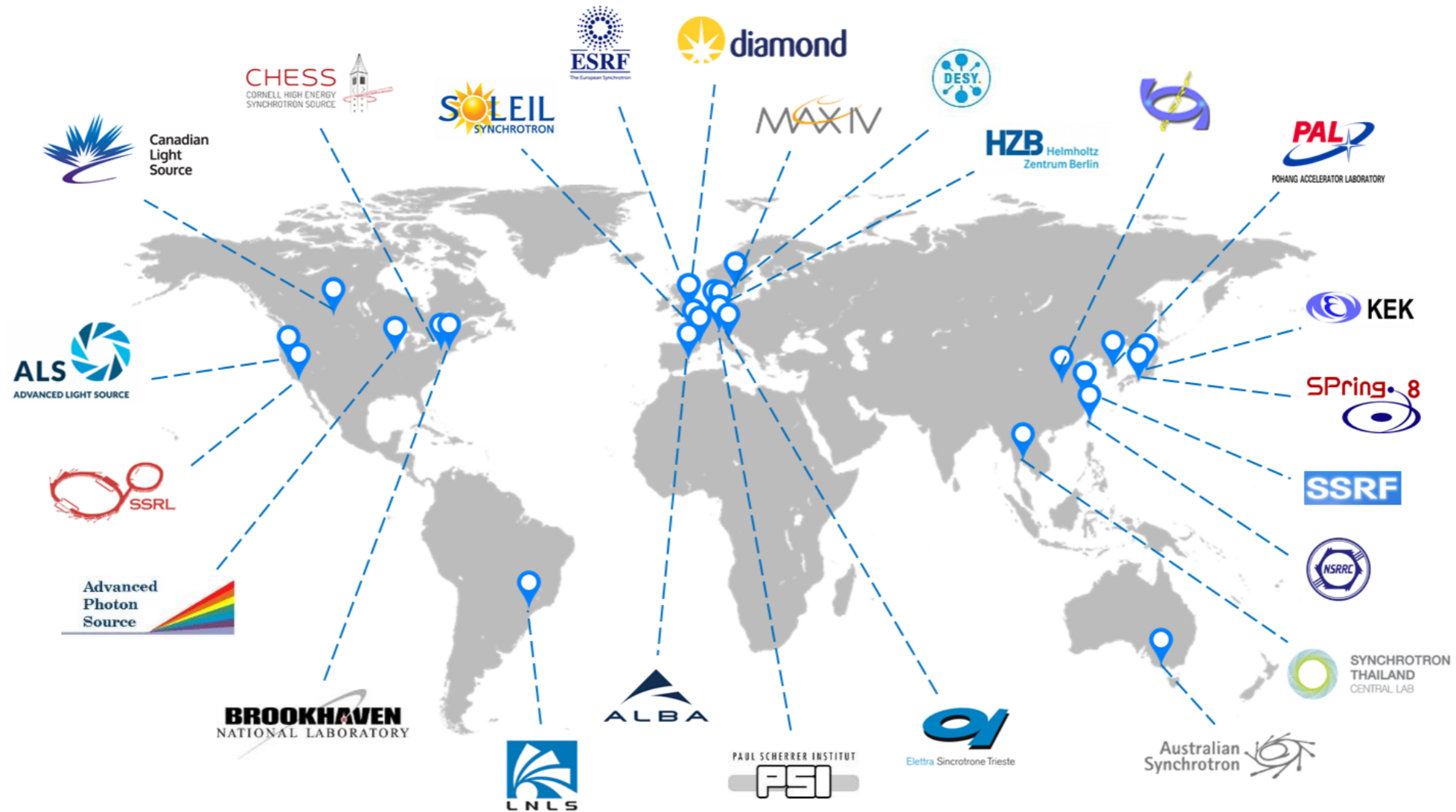


**ESRF** - France





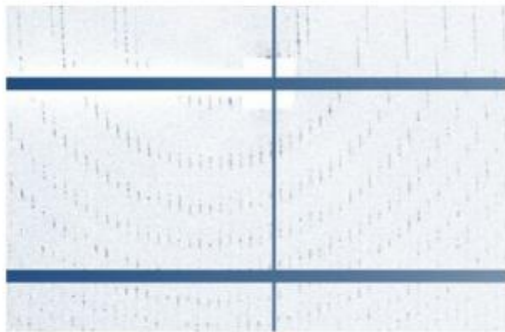
# Synchrotrons Around the World



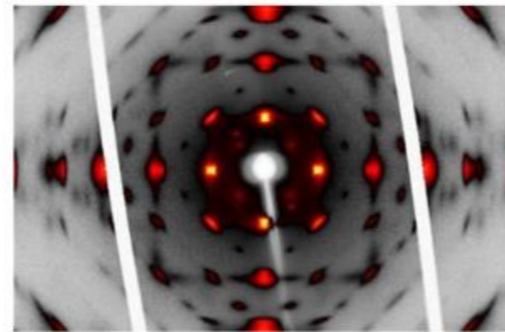


# Applications

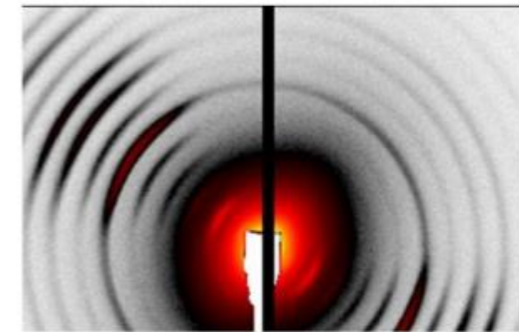
**Macromolecular  
Crystallography**



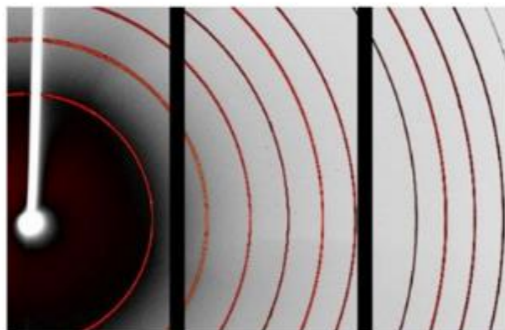
**Chemical  
Crystallography**



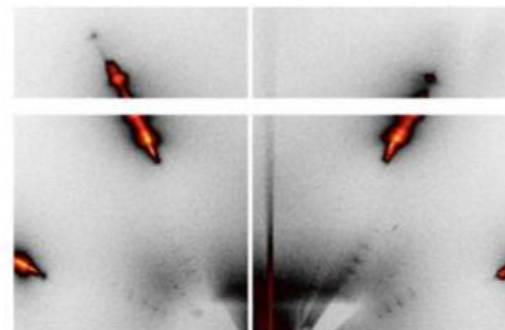
**SAXS / WAXS**



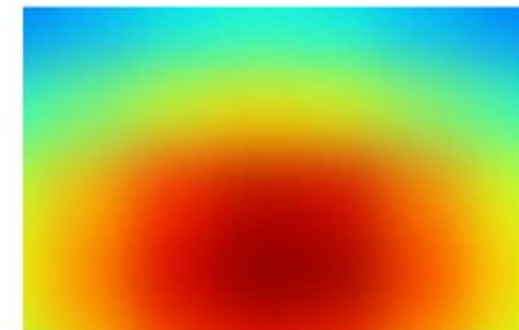
**Powder Diffraction**



**Material Science**

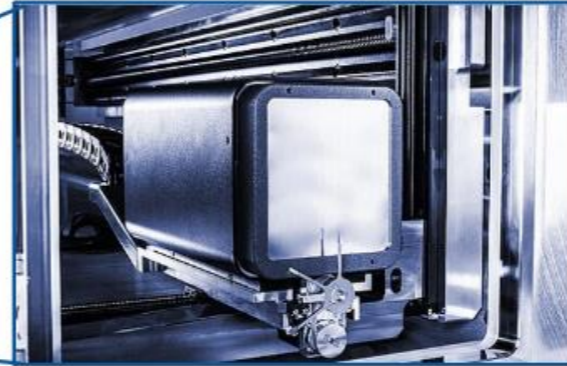


**Spectroscopy**





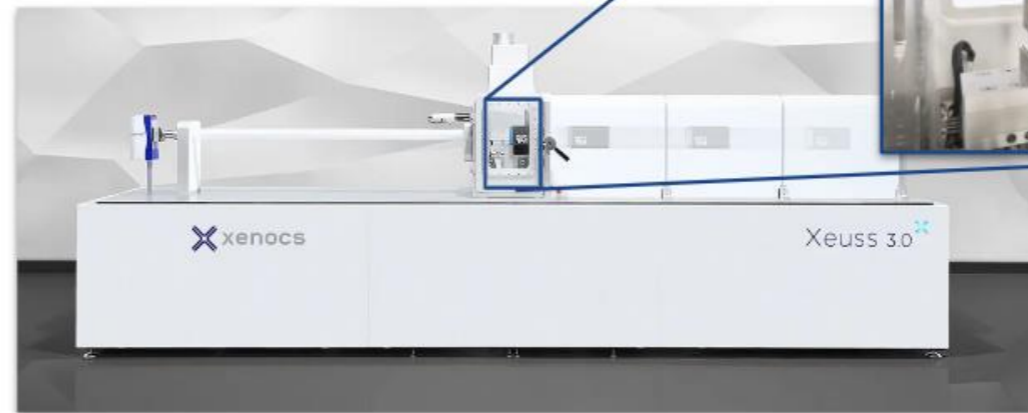
# DECTRIS INSIDE



**Anton Paar**

SAXS/WAXS/GISAXS/RheoSAXS laboratory beamline:

**SAXSpoint 5.0**



**xenocs**



# Detectors for Electron Microscopy



**QUADRO**



**ELA**



**SINGLA**



**ARINA**





# Product Engineer - 2022

## EIGER2 Si

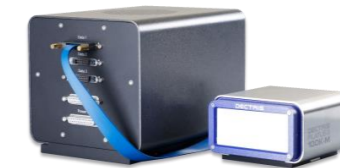
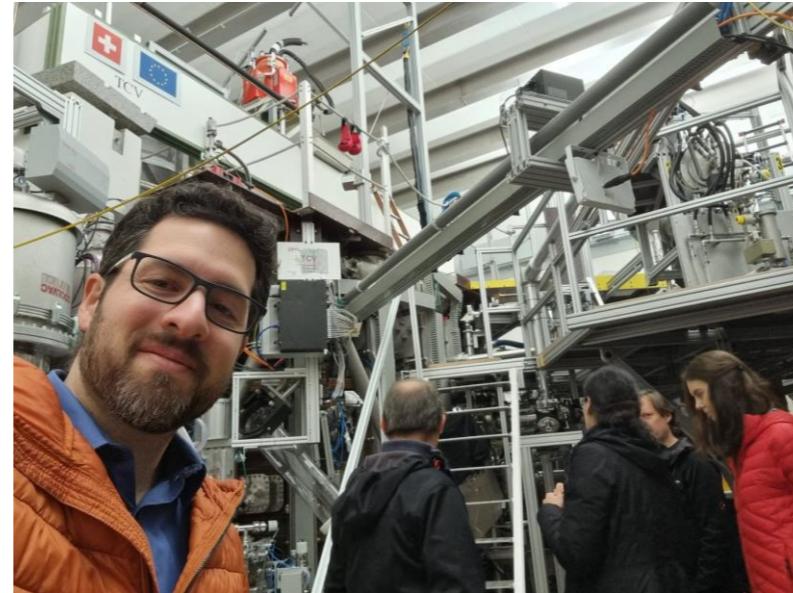


## EIGER2 CdTe





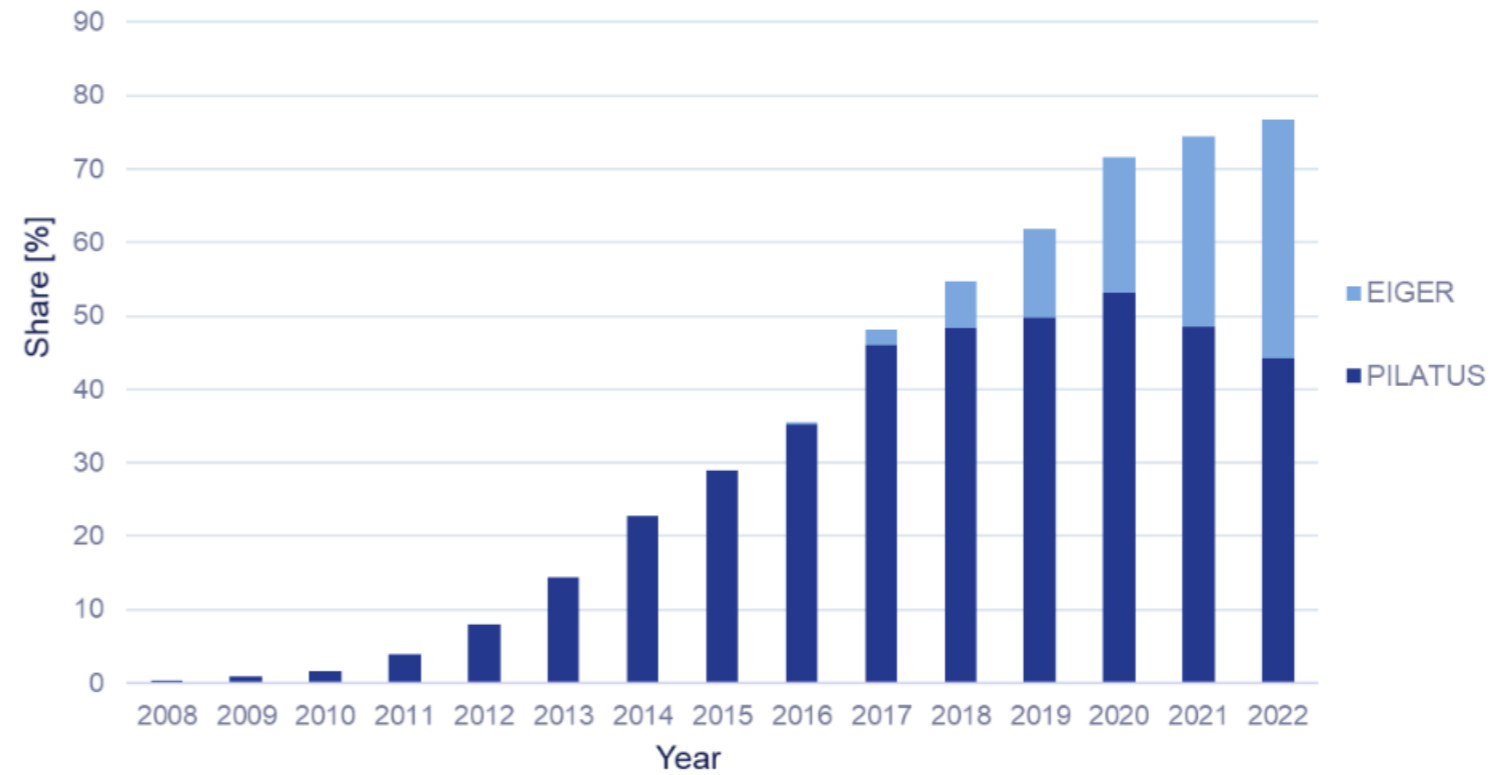
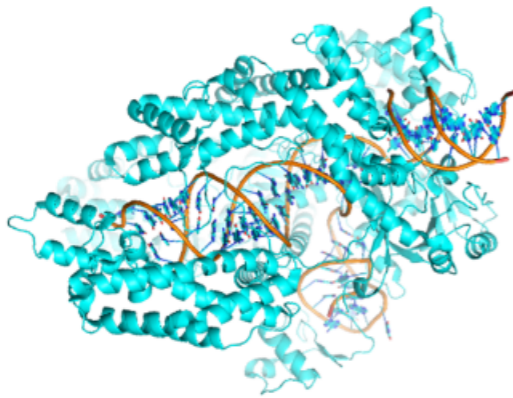
# Technical Product Manager - 2024





# Making an Impact

More than 70% of the PDB (Protein Data Bank) structures have been determined with PILATUS and EIGER detectors





# Combating the Zika Virus

**CNN Money** Switzerland + Markets Thematic Shows The Living Markets The Big Picture The Newsmaker

**nature**  
International journal of science

MENU ▾

Article | Published: 23 June 2016

Structural basis of potent Zika-dengue virus antibody cross-neutralization

10.08.2016 08:52

Dectris detectors play important role in the fight against Zika virus

**CORPORATE SWITZERLAND**

**DECTRIS HAS HELPED DETERMINE HALF OF GLOBAL PROTEIN STRUCTURES**

03:36 / 15:54

Dr. Christian Brönnimann, DECTRIS founder. Interview on CNN Money (2018)



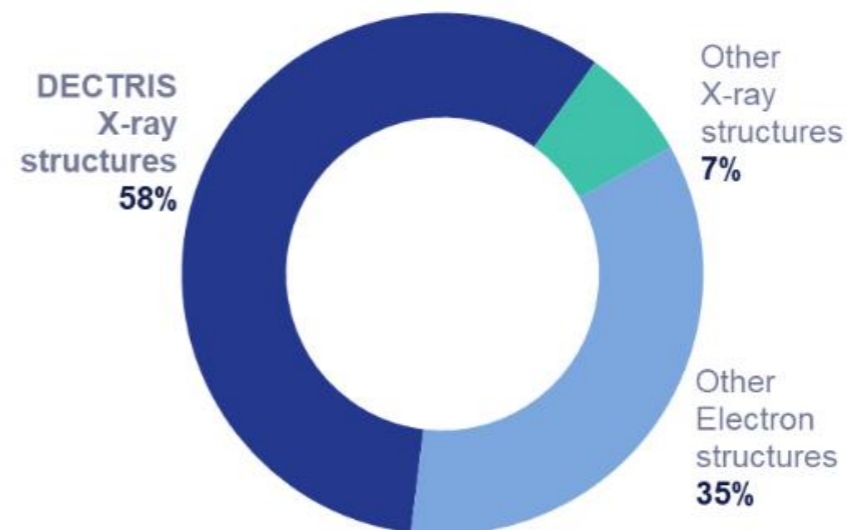


# Defense against COVID-19



IMCA-CAT/Hauptman-Woodward Medical Research Institute  
Image by Lisa Keeffe

## SARS-COV2 protein structures in PDB determined with DECTRIS Detectors

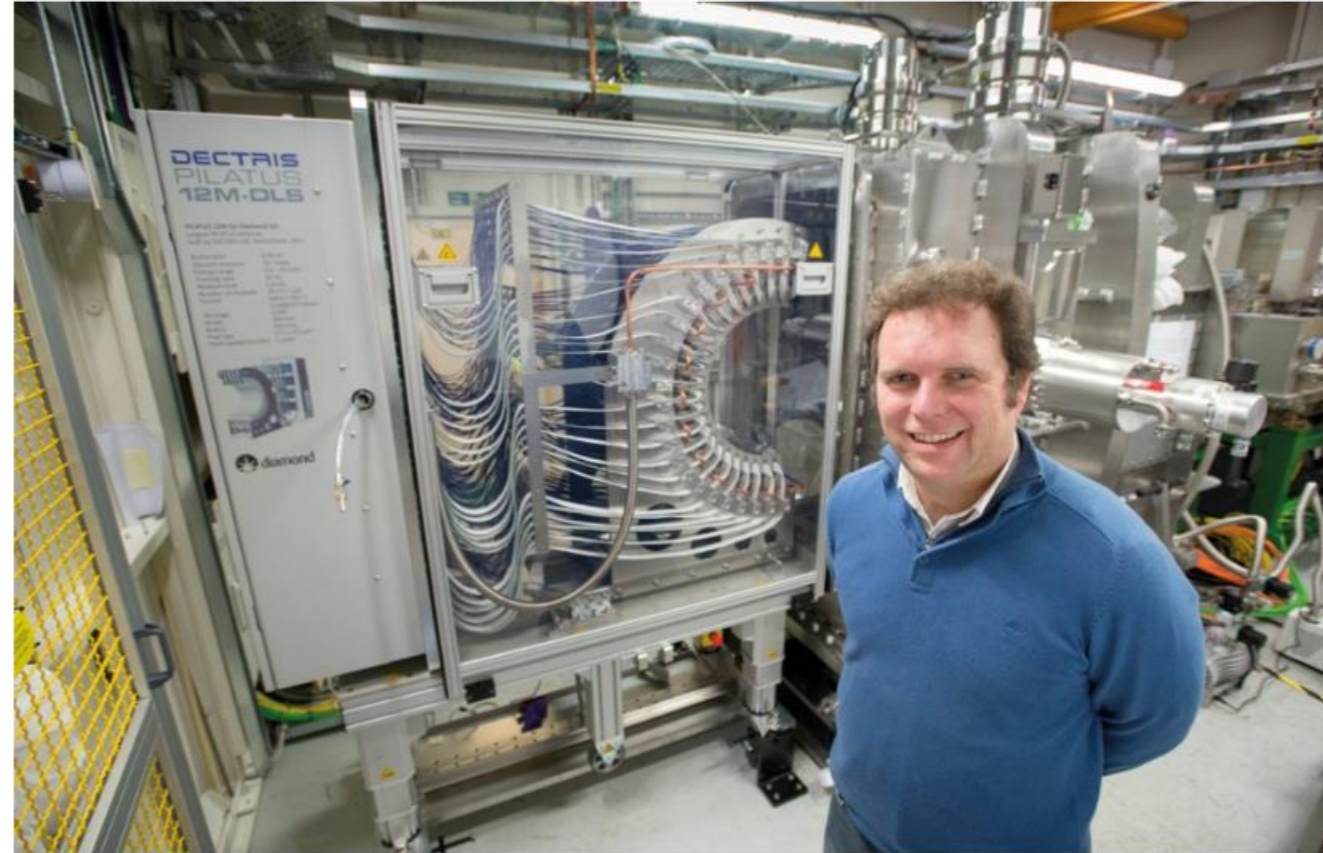




# Degrading Plastic Waste

In 2015, a bacteria was discovered that “feeds” on PET.

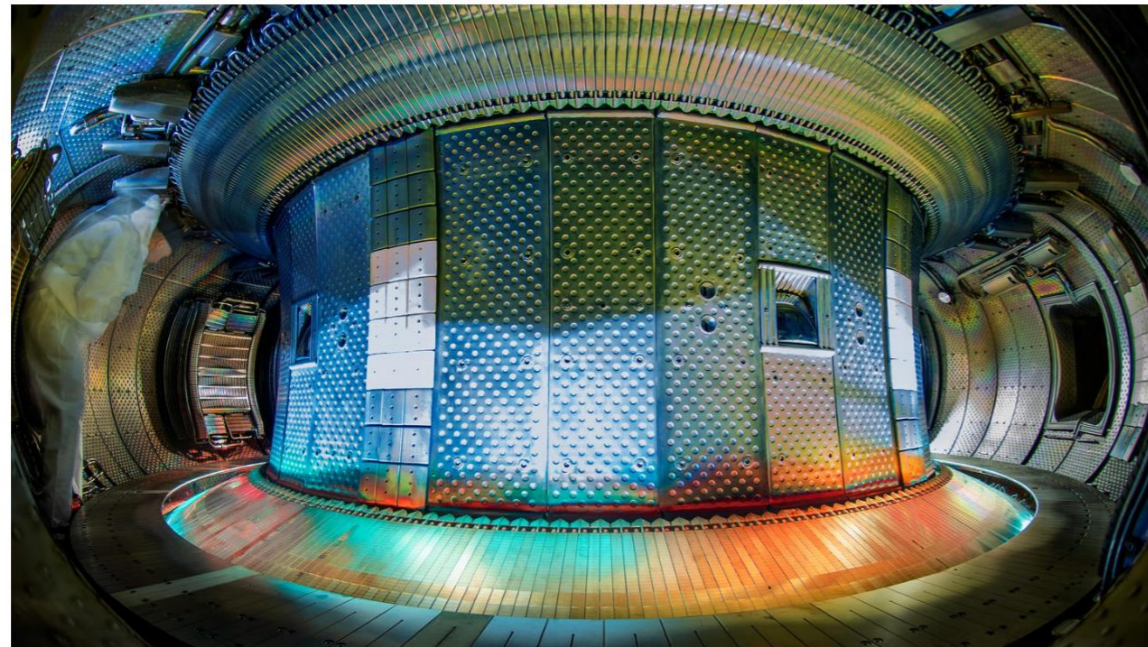
DECTRIS detectors have been used to analyze the plastic-degrading enzyme, allowing to modify and enhance its activity. This has the potential of improving the recycling of PET and reduce plastic waste.



*Principal beamline scientist Armin Wagner in front of the PILATUS 12M-DLS detector (courtesy of Diamond Light Source).*



# Advancing the Viability of Fusion Energy



50 Million degree hot fusion plasma



For a record 6 minutes



# Key Takeaways

- A majority of you **will** find yourselves at the crossroads between science and industry, at some point
- Your PhD is **one of many** tools in your arsenal that you'll need to move into, and advance in industry
  - **Develop those other tools** and use them wisely
    - What you do beyond your PhD is what will help you **stand out from the crowd**
  - Your **secondments are a key advantage**. Profit from them!
- *What* you do is important. But ***effectively communicating what you do*** is even more important
- **Showing up** is half the battle
- Show your **passion**
- **There's no hurry**

# Thank you for your attention!

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