

# Dark Matter group

Who is there?

What projects?

What to expect?

Auke-Pieter Colijn ([colijn@nikhef.nl](mailto:colijn@nikhef.nl))

# Who?

- Small team of *experimental* physicists
  - 3 permanent scientists -> Auke Colijn ([colijn@nikhef.nl](mailto:colijn@nikhef.nl)) = me = one of these
  - 1 postdoc
  - 3 PhD students
  - 3 MSc students -> Barbara Paetsch ([b.paetsch@nikhef.nl](mailto:b.paetsch@nikhef.nl)) can be contacted
- Bigger experimental collaborations.... But not too big

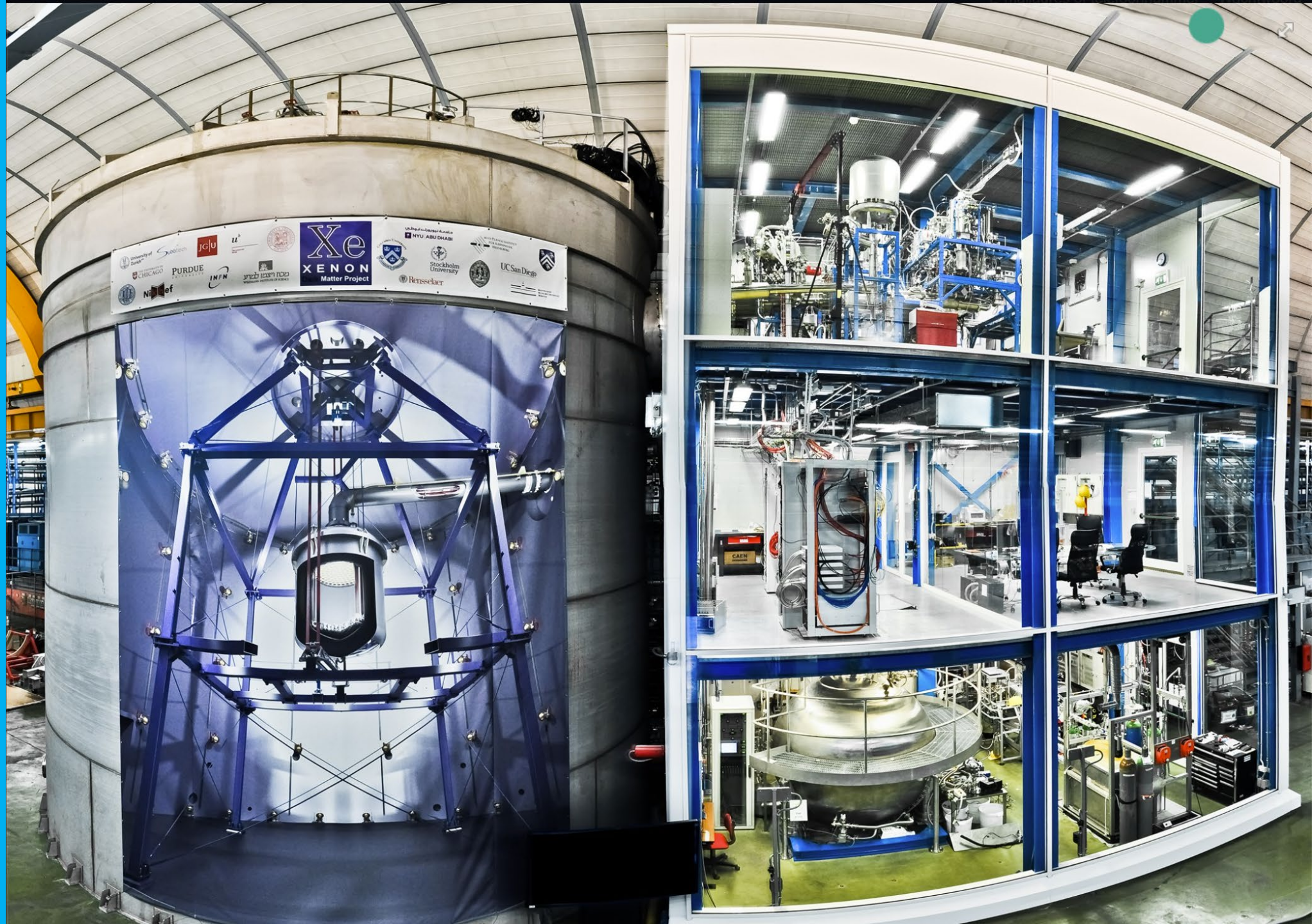
On the wiki: [https://wiki.nikhef.nl/education/Master\\_Projects](https://wiki.nikhef.nl/education/Master_Projects) we offer projects on 1+2. But projects can be driven by student initiative as well.

# “My” experiments

1. XENON1T, XENONnT, DARWIN to find dark matter
2. XAMS to develop detection technology for next generation experiments
3. Modulation experiment. Small table top to find ‘weird’ effects in radioactive decays
4. PTOLEMY to see if we can find relic neutrinos (very very hard)

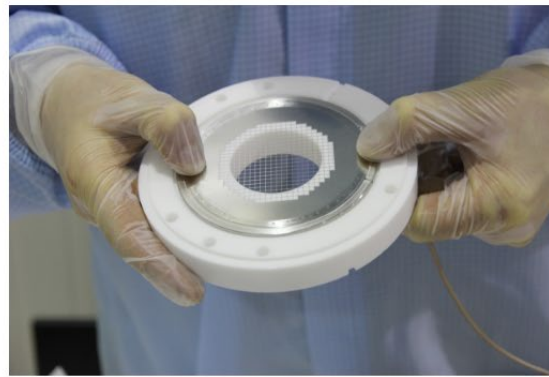


XENONnT





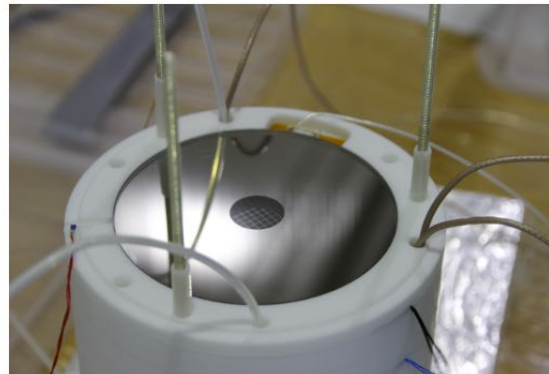
# XAMS



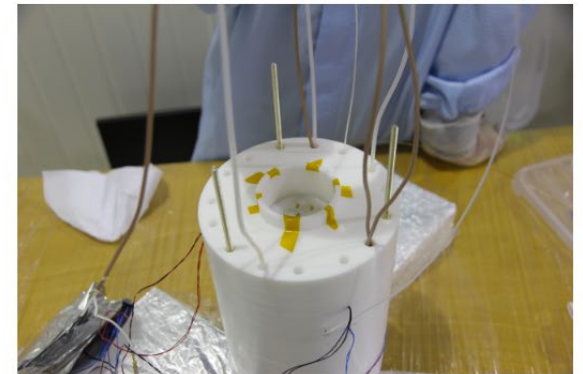
(a) Installation of an electrode mesh.



(b) Installation of a field-shaping ring..



(c) Installation of novel anode A.



(d) SiPM holder with novel tape to prevent floating.



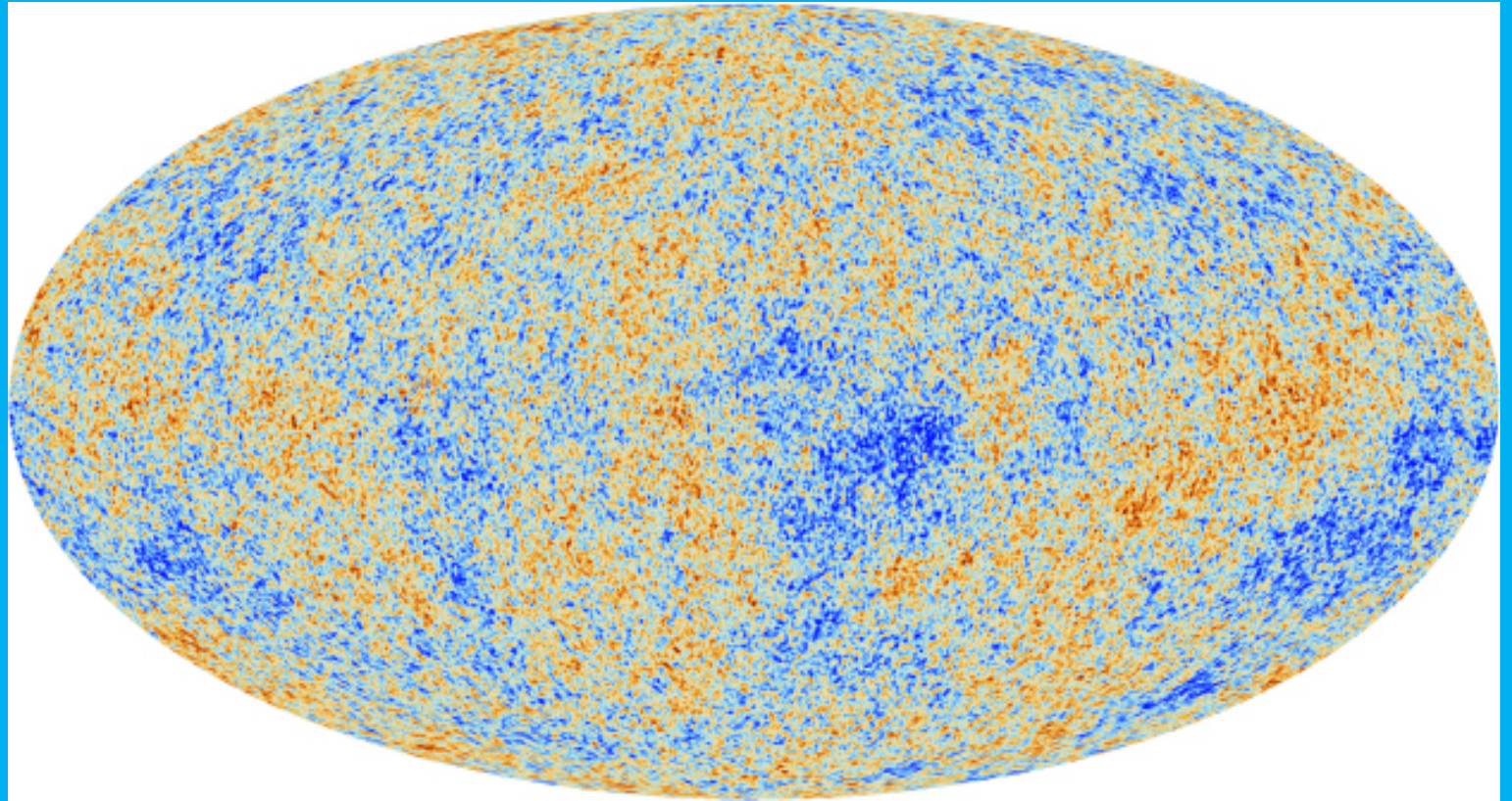
(e) Care was taken to clean after each step.



(f) Screwing together suspension assembly.

Figure 4.12: Selected photographs of a few essential steps in the assembly of XAMS.

PTOLEMY



But now for neutrinos

# What to expect?

1. Enjoy the membership of our Dark Matter group
2. Participate in lively scientific discussions and more....
3. “Own” your experiment at Nikhef – or – be part of the XENON/DARWIN collaboration
4. Good supervision
5. Exciting research, an excellent thesis, graduate in 9 months.