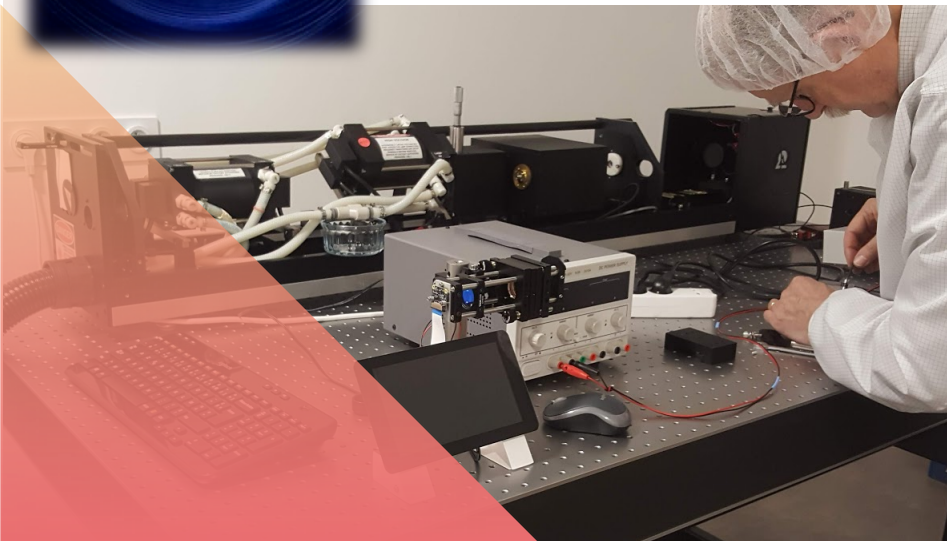
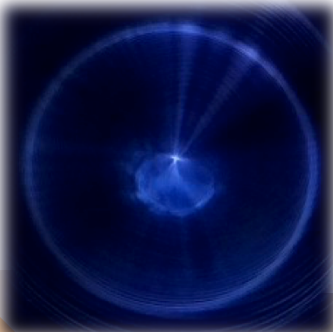
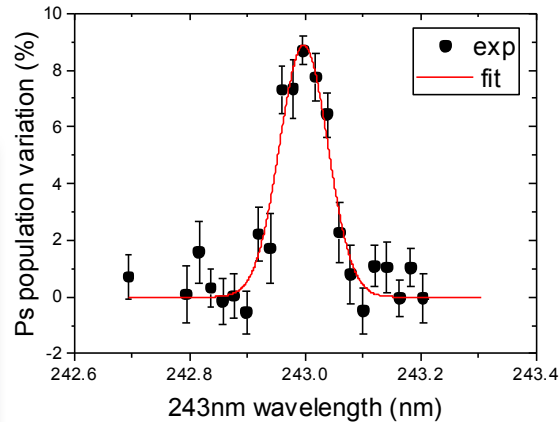


# Positronium surface-scanning microscopy

The idea being investigated is how to build the first antiatoms optics with laser cooling with a source of **positronium atoms**, towards making the first low-divergence beams of antimatter.



## Current status of progress:

**50%** of deliverables completed so far (proof-of-principle demonstration being carried out, upgraded laser being built)

**94%** of budget (100 kEUR) spent/committed so far.

Any remaining uncertainties w.r.t planned deliverables

No

Yes; delivery time of the upgraded laser system

Using students (PhD/MSc/BSc) in the project?

No

Yes;

Any interactions with other funded ATTRACT projects so

No

Yes;

## If your project were to be selected for ATTRACT Phase 2:

**How would your technology scale up to become an industrial product/system?**

Many development steps required before an industrial product would be available

**With who you would need to partner for this to happen? (No names, just profiles of type of organizations)**

Nanofabrication laboratories and companies (zone plates), micron-resolution position-sensitive beam detectors.

**Have you already discussed this with KT Group?**

No

**What applications will you demonstrate with value for science, industry and society? (Examples)**

laser cooling of positronium, atom optics for neutral antimatter beams; positronium interaction with surfaces

**Any comments, remarks or observations you would like to make to CERN?**

Need to use funds from CERN budget until July 2020: extension request being prepared