ASTROPARTICLE PHYSICS

LAURA BAUDIS GROUP

OPEN BACHELOR AND MASTER TOPICS

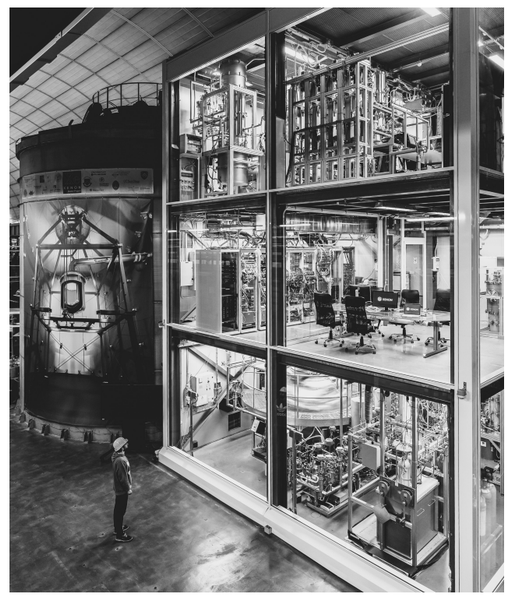
BRING LIGHT INTO THE DARK

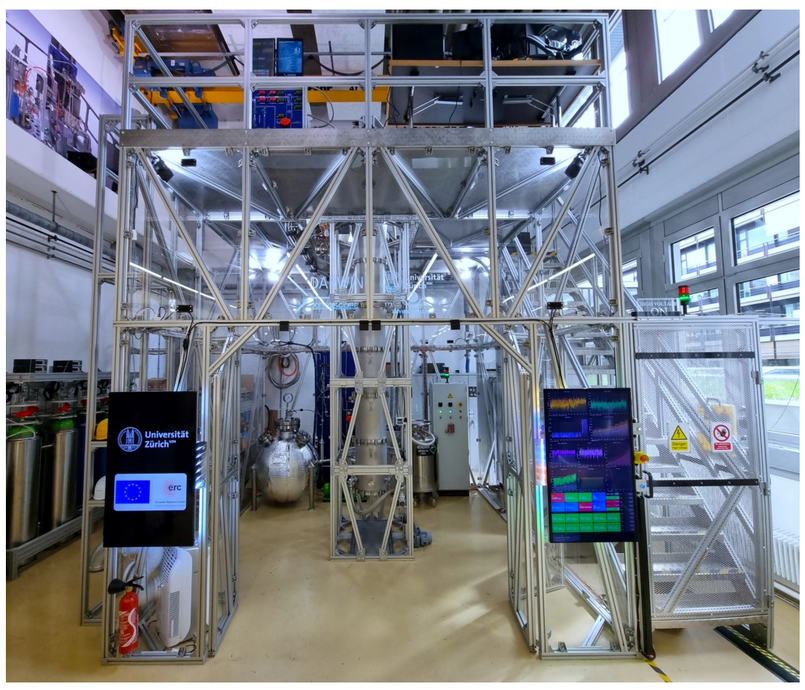
www.physik.uzh.ch/en/groups/baudis/Positions.html

XENONnT – what is the nature of dark matter?

Gran Sasso underground laboratory, Italy

Be part of the analysis and simulation task force and search for WIMP dark matter, axions and ultra-rare processes such as the neutrinoless double beta decay of ^{136}Xe in an ultra-low radioactivity environment. As a master student working on XENONnT you can also visit the Gran Sasso laboratory to help running the XENONnT detector as a shifter on site. (Bachelor & Master)





Xenoscope and DARWIN – the future of direct dark matter detection

Local experiments at UZH

DARWIN is a next-generation astroparticle physics observatory. With a 40-tonne liquid xenon target it will probe dark matter with unprecedented sensitivity. Building such a large xenon detector is challenging, hence we first constructed a vertical demonstrator for the time projection chamber here in Zürich, with the goal to test new technologies for DARWIN. You can participate in a wide range of hardware and simulation projects, as well as in measurements of new photosensors with smaller two-phase xenon TPCs (Xurich, MarmotX). (Bachelor & Master)

LEGEND – are neutrinos their own antiparticles?

Gran Sasso underground laboratory, Italy

In the LEGEND-200 and LEGEND-1000 experiments, which aim to reach an unprecedented low background rate and sensitivity to the neutrinoless double beta decay of ^{76}Ge, you may work on analysis topics with initial LEGEND-200 data, to start a science run in late 2022, as well as on MC simulation and hardware projects, such as the calibration system, for the future LEGEND-1000 experiment. (Bachelor & Master)

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