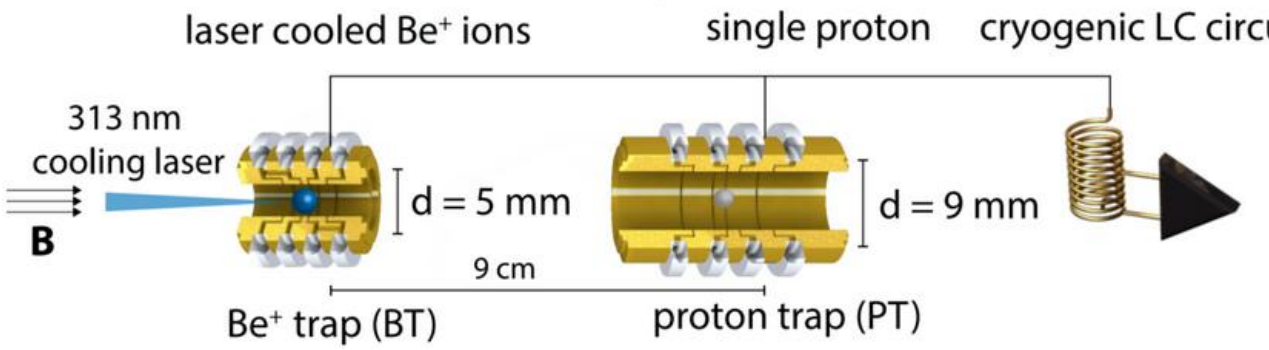
Open PhD position
Improve matter-antimatter comparisons in cool experiments



Sympathetic laser cooling system using a single proton, a cloud of laser cooled beryllium ions and a cryogenic LC circuit to transmit the cooling power by image currents

One of the unanswered questions in modern physics is the asymmetry in the abundance between matter and antimatter in our universe. The goal of the BASE collaboration is to explore this asymmetry in the baryonic sector comparing the properties of protons and antiprotons.

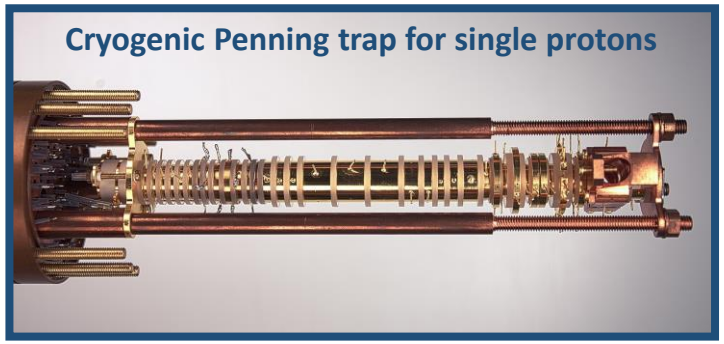
Currently, we are searching for a PhD student joining our experimental work that aims to improve the measurement of the proton magnetic moment. We have just demonstrated the first sympathetic cooling using image-current coupling to laser-cooled ions in our proton trap system. The goal of the open PhD thesis is to exploit this new cooling technique for improvements in the measurement techniques and reducing the uncertainty of the proton magnetic moment.

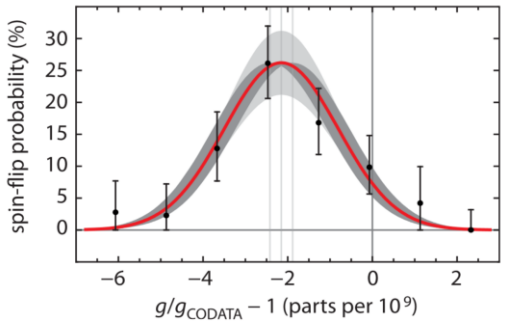
You will have the opportunity to learn various experimental techniques in our group:

- Building cryogenic experiments and trap systems at 4.2K
- Laser cooling and image-current coupling
- Precision measurement techniques for single particles
- Antimatter physics and precision spectroscopy on single ions

If you are interested in an experimental physics PhD position with a broad spectrum of activities, e.g. experiment design, hands-on experiments, data taking and data analysis, please contact us!

Cryogenic Penning trap for single protons





Our latest proton magnetic moment: μ_p = 2.79284734462(82) μ_N

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