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Control system for ion Penning traps at the AEgIS experiment at CERN

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The AEgIS experiment located at the Antiproton Decelerator at CERN aims to measure the gravitational fall of a cold antihydrogen pulsed beam. The precise observation of the antiatoms in the Earth gravitational field requires a controlled production and manipulation of antihydrogen. The neutral antimatter is obtained via a charge exchange reaction between a cold plasma of antiprotons from ELENA decelerator and a pulse of Rydberg positronium atoms. The current custom electronics designed to operate the 5 and 1 T Penning traps are going to be replaced by a control system based on the SINARA/ARTIQ open hardware and software ecosystem. This solution is present in many atomic, molecular and optical physics experiments and devices such as quantum computers. Our group is directly involved in the design and implementation of the ecosystem. We are going to report the status of the implementation as well as the main features of the new control system.

TIPP2020 abstract resubmission?

No, this is an entirely new submission.

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