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【522】 PHySES - Measurement of the Positronium Hyperfine Structure in the first Excited State

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Positronium is an excellent system to test bound state QED theory to high precision, since it is almost exclusively governed by the electromagnetic force and does not exhibit finite size effects which plague measurements of protonic atoms.

Numerous precise experiments have therefore been conducted in the past to measure the hyperfine splitting of Positronium. However, these experiments show almost 4σ disagreement with the most recent bound state QED calculations.

PHySES' approach is to eliminate several possible sources of systematics present in earlier experiments by a novel experimental design to conclusively check this discrepancy. This talk will report on the design, the current status, and future prospects of the experiment.

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