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Automatic optimization of a Parallel-Plate Avalanche Counter with Optical Readout

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We propose an optimization system for a Parallel-Plate Avalanche Counter with Optical Readout designed for heavy-ion tracking and imaging. Exploiting differentiable programming, we model the reconstruction of the position for different detector configurations and build an optimization cycle that minimizes an objective function. We analyze the performance improvement using this method, exploring the potential of these techniques with the ultimate goal of fully designing a tomography system based on neutrons.

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