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MAX IV photoinjector gun

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This paper presents the latest photoinjector gun developed for the Short Pulse Facility (SPF) at MAX IV. The focus is on the mechanical design, which has been optimized around a simulated RF internal volume to ensure high performance and precision. Key areas of investigation include RF tuning strategies, thermal management via integrated internal cooling channels, and the challenges encountered during manufacturing and assembly, along with the corresponding engineering solutions. Design enhancements introduced throughout development are highlighted to provide insights into technical progress and practical experience. Potential future improvements are also discussed, targeting further optimization of performance, efficiency, and long-term operational reliability.

Footnotes

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