**Title:** Computational Fluid Dynamics Design of a Very High-Power Rotating Positron Target

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**Abstract:**

Computational Fluid Dynamics (CFD) has been used in designing a very high-power rotating tungsten target to produce a positron beam. The positrons will be produced by a primary 1 mA electron beam with energy 120 MeV impinging on a rotating tungsten wheel through bremsstrahlung. The W target will be instrumented with water cooling to remove the estimated 17 kW of heat deposited by the primary electron beam in it [1]. The target will be central to accomplishing a rich experimental program using a positron beam at Jefferson Lab. In this contribution, I will present the status of the CFD-driven design of the target and the path towards a production positron target.

**Keywords:**

High-power rotating target, positrons, computation fluid dynamics (CFD), ANSYS-Fluent

**References:**

[1] J. Grames et al., "Positron beams at Ce+BAF", in Proc. IPAC'23, Venice, Italy, May 2023, pp. 896-899. doi:10.18429/JACoW-IPAC2023-MOPL152

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