



# A report from LCWS Source Group Session

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Masao KURIKI  
Hiroshima U.



# Session

19 contributions

Conveners

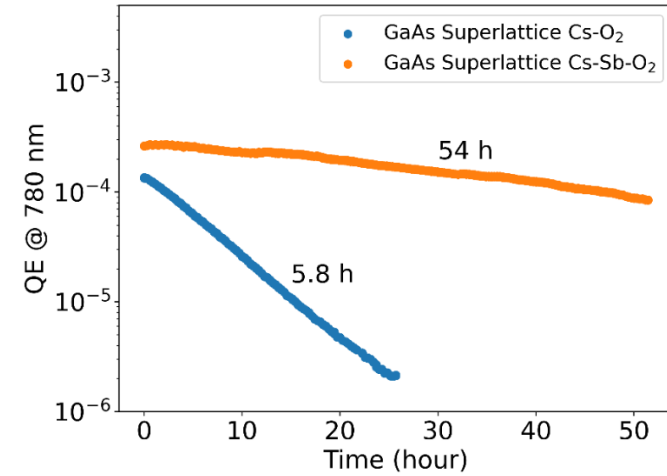
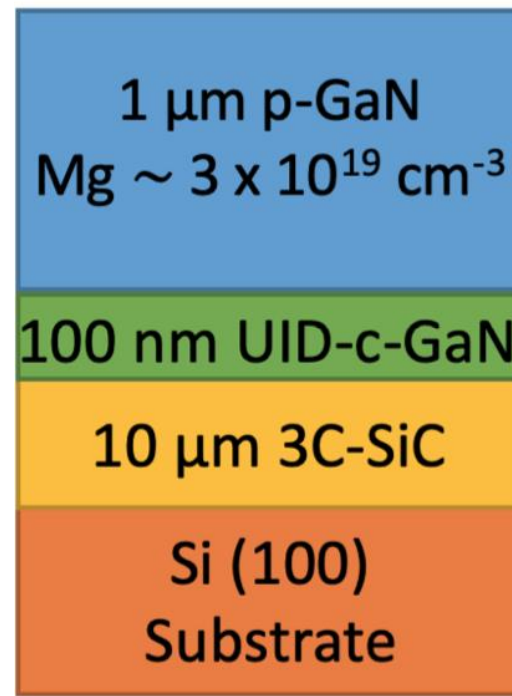
- [Spencer Gessner](#) (SLAC)
- [Gudrid Moortgat-Pick](#) (DESY/U. Hamburg)
- [Andriy Ushakov](#) (Jefferson Lab)
- [Joe Grames](#) (Jefferson Lab)
- [Steffen Doebert](#) (CERN)
- [MASAO KURIKI](#) (Hiroshima University)

<b>Towards robust polarized photoemission electron sources</b> 48/1-112A/B - Redwood A/B, SLAC	Jared Maxson 10:30 - 10:50
<b>Building the next high voltage dc photogun polarized source for the ILC at JLab</b> 48/1-112A/B - Redwood A/B, SLAC	Carlos Hernandez-Garcia 10:50 - 11:00
<b>Status Undulator-based Source</b> 48/1-112A/B - Redwood A/B, SLAC	Gudrid Moortgat-Pick et al. 11:00 - 11:20
<b>Mechanical and thermal stress on a pulsed solenoid for positron capture at the ILC undulator-based positron source</b> Carmen Tenholt et al.	
<b>High Power Solid Target for Positron Source at CEBAF</b> 48/1-112A/B - Redwood A/B, SLAC	Andriy Ushakov 11:30 - 11:50
<b>Optimization of CW Polarized Positron Source for JLab</b> 48/1-112A/B - Redwood A/B, SLAC	Sami Habet 11:50 - 12:00
<b>E-driven and flux concentrator status and plans</b> 51/3-305 - Kavli 3rd Floor, SLAC	Dr Yoshinori Enomoto et al. 13:30 - 14:00
<b>Target Status and plan</b> 51/3-305 - Kavli 3rd Floor, SLAC	Dr Yu Morikawa 14:00 - 14:10
<b>Start to end positron source simulation</b> 51/3-305 - Kavli 3rd Floor, SLAC	MASAO KURIKI 14:10 - 14:30
<b>APS cavity study</b> 51/3-305 - Kavli 3rd Floor, SLAC	Hitoshi Hayano et al. 14:30 - 14:40
<b>Beam loading compensation on the booster linac</b> 51/3-305 - Kavli 3rd Floor, SLAC	Dr S Kuroguchi 14:40 - 14:50
<b>Liquid Xenon Positron Target</b> 51/3-305 - Kavli 3rd Floor, SLAC	Max Varverakis et al. 14:50 - 15:00
<b>US Target and Sources Roadmap</b> 53/4-4002 - Toluca, SLAC	Spencer Gessner 10:30 - 10:50
<b>High voltage DC gun using Super lattice GaAs photocathode for EIC polarized electron source</b> 53/4-4002 - Toluca, SLAC	Erdong Wang 10:50 - 11:00
<b>Status Target Tests</b> 53/4-4002 - Toluca, SLAC	Tim Lengler 11:00 - 11:10
<b>Adiabatic matching device development at CERN</b> 53/4-4002 - Toluca, SLAC	Steffen Doebert 11:10 - 11:30
<b>Status Report on the Magnetohydrodynamic Simulations of a Tapered Plasma Lens for Optical Matching at the ILC e+ S</b> Manuel Formela	
<b>CURRENT STATUS OF PLASMA DIAGNOSTICS OF A PROTOTYPE PLASMA LENS AS AN OPTICAL MATCHING DEVICE</b> Niclas Hamann	
<b>A Compact Source of Positron Beams with Small Thermal Emittance</b> 53/4-4002 - Toluca, SLAC	Rafi Hessami 11:50 - 12:00

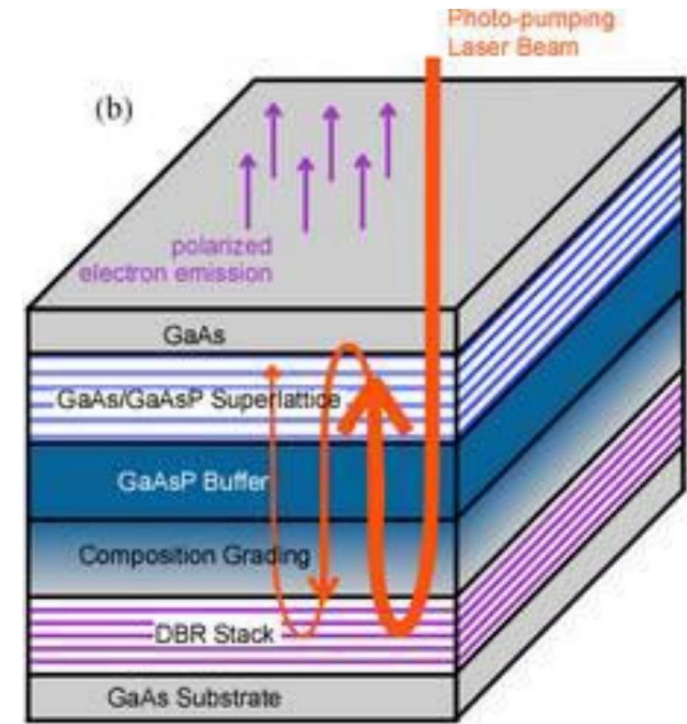
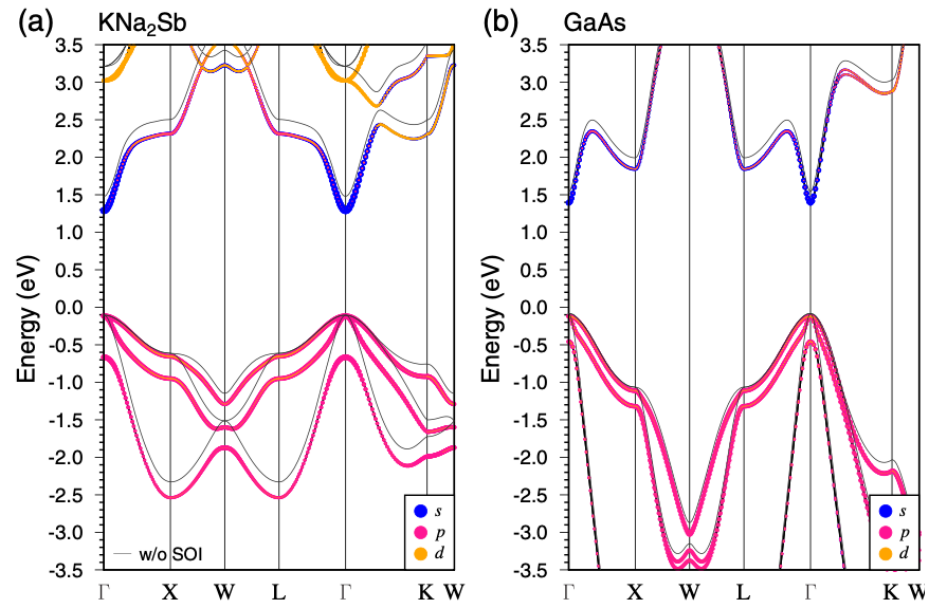


# Polarized Photocathodes for Future Linear Colliders: Status and Outlook: Jared Maxon (Cornell U.)

Good review for the latest trend of polarized electron source : DBR GaAs, protective layer, Pol. E from multi-alkali, and GaN.



Bae et al, *Journal of Applied Physics*. **127**, 124901 (2020)



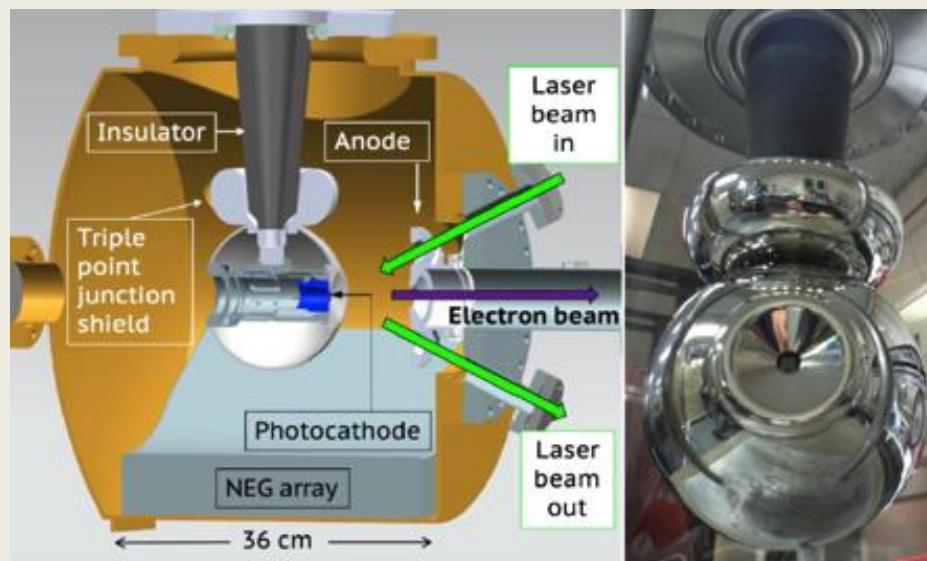
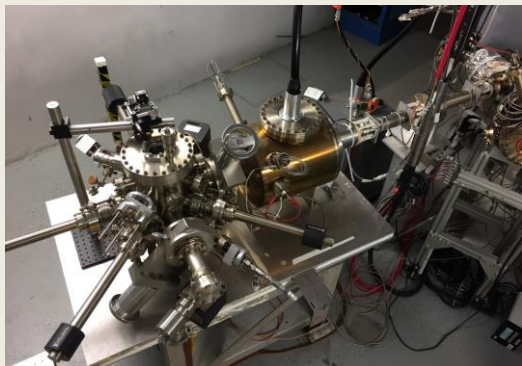
DBR photocathode

# Building the next high voltage dc photogun polarized source for the ILC at Jlab : Carlos Hernandez-Garcia

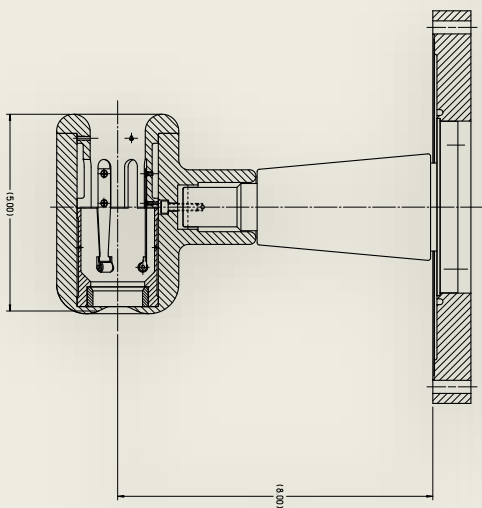
200kV inverted gun

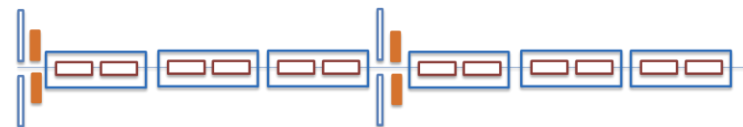
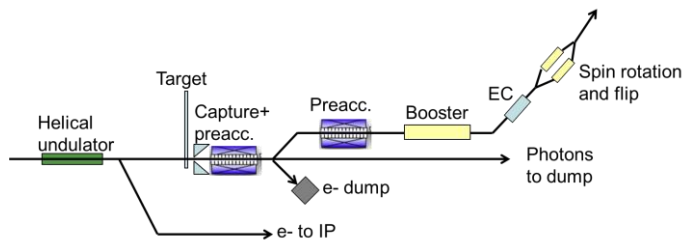
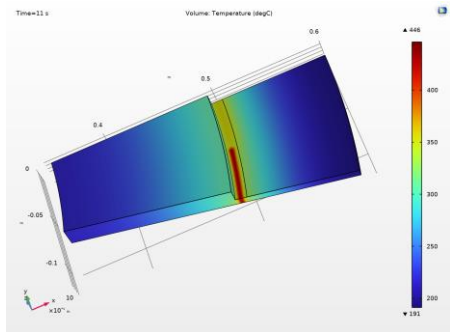
-> 300 kV gun for ILC, CLIC, EIC

-> 500kV gun

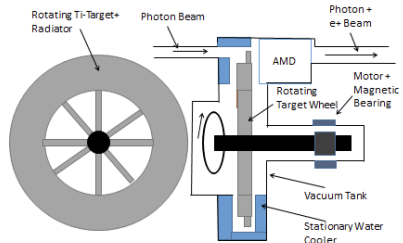


7 in

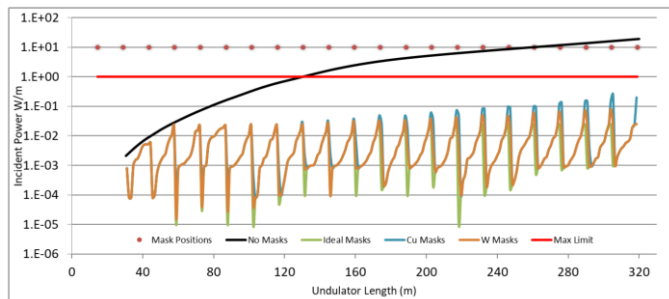




Principal Layout: Ti-Wheel with a Diameter of 1.0 m, rotating at 100 m/s, 2000 rpm.

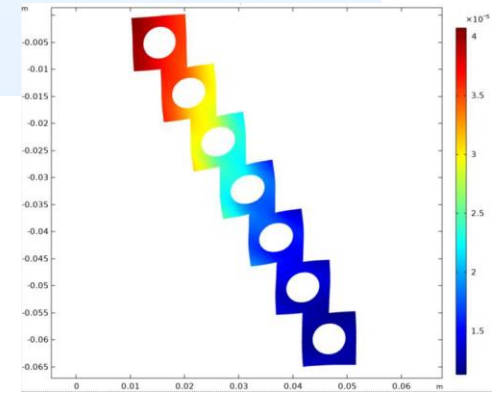
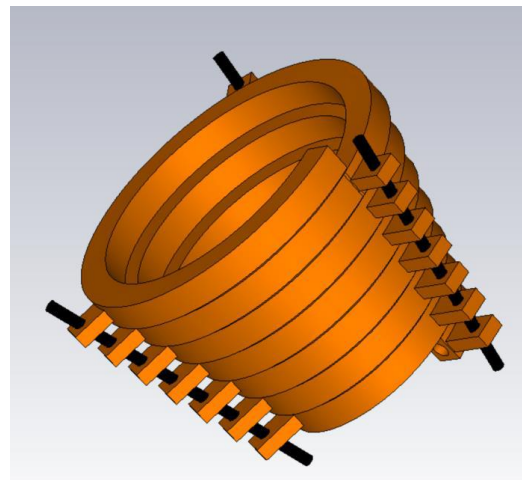
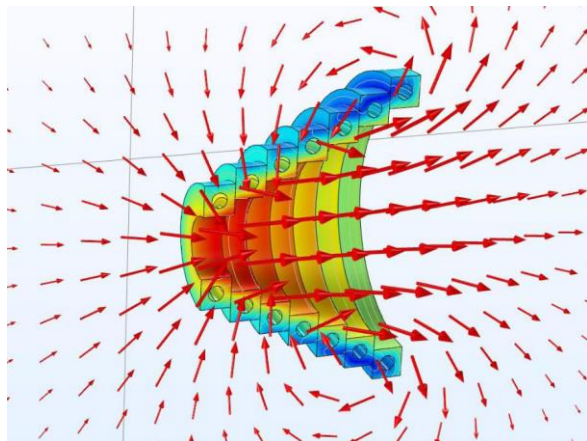
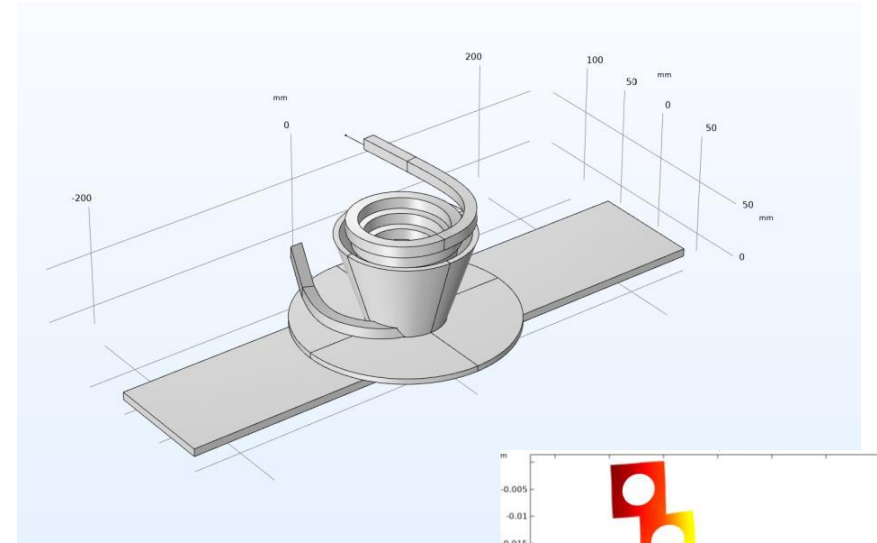
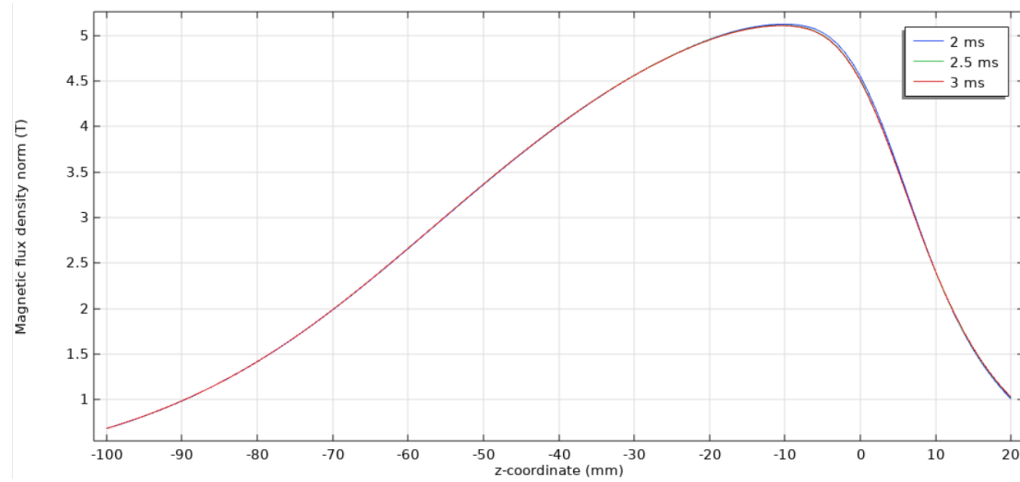


# Status of Undulator e+ source : G. Moortgat-pick

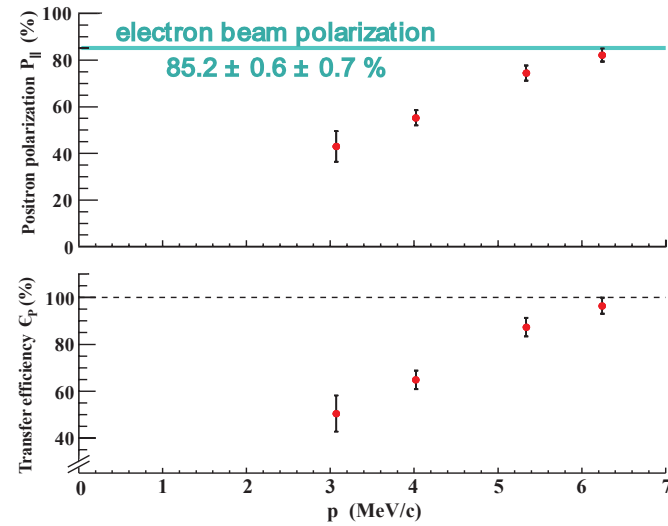
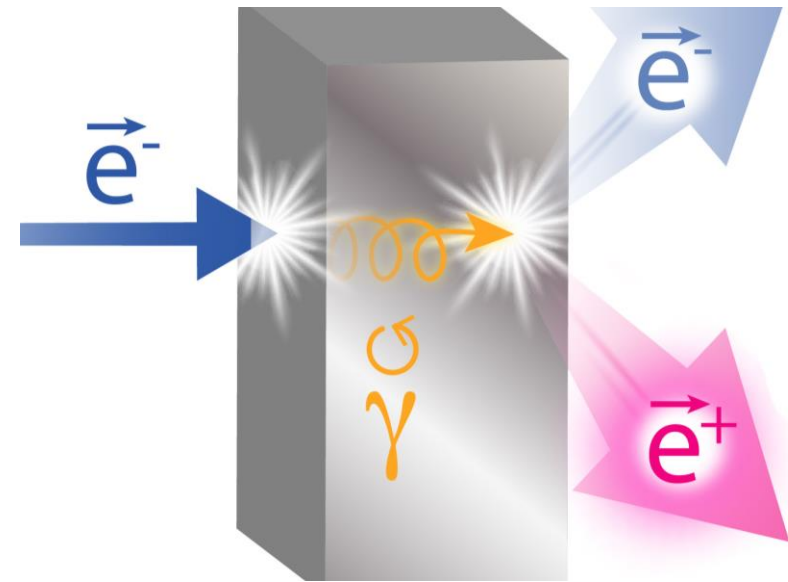




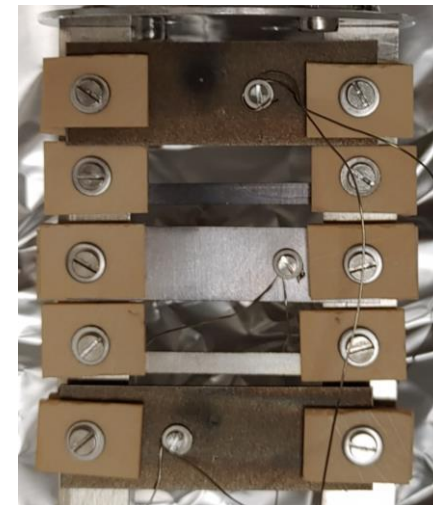
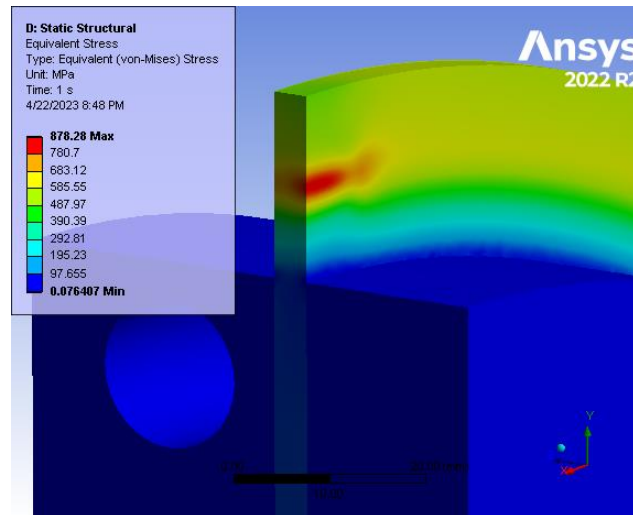
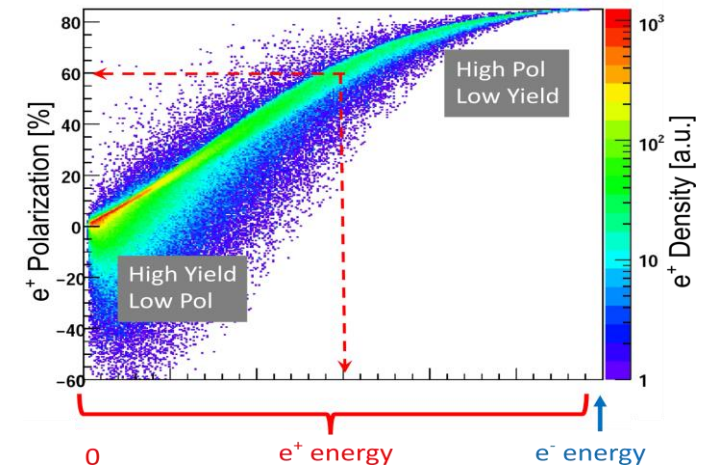
# Mechanical and thermal stress on a pulsed solenoid for positron capture at the ILC undulator based positron source : C. Tehnolt



# High Power Solid Target for Positron Source at CEBAF: A. Ushakov

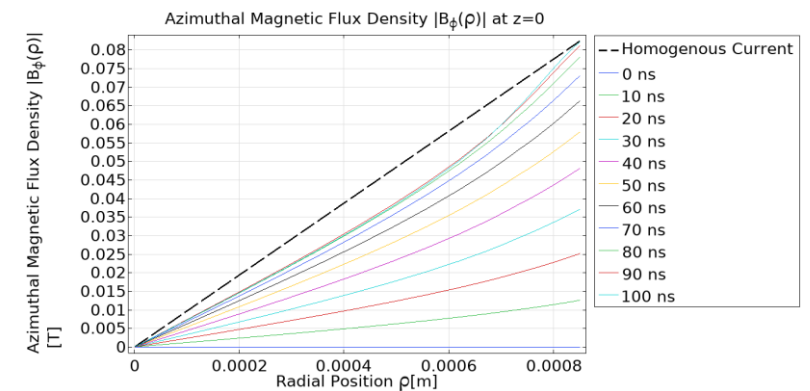
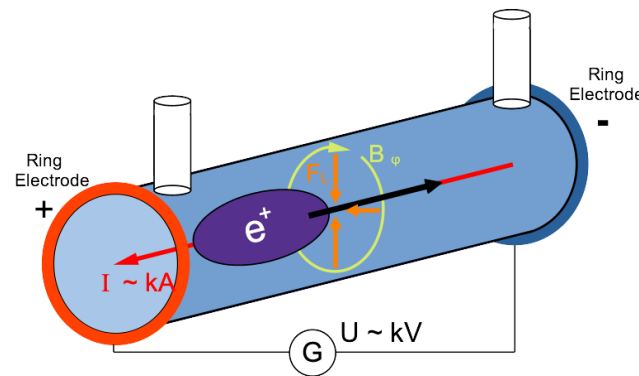
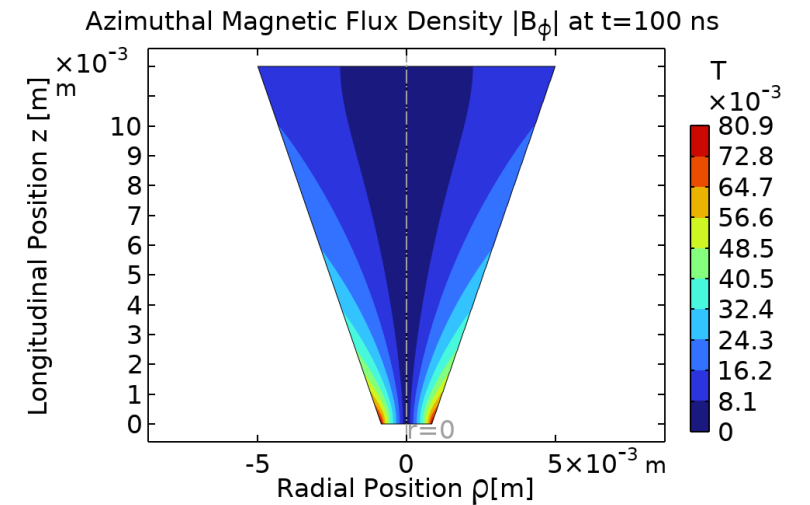
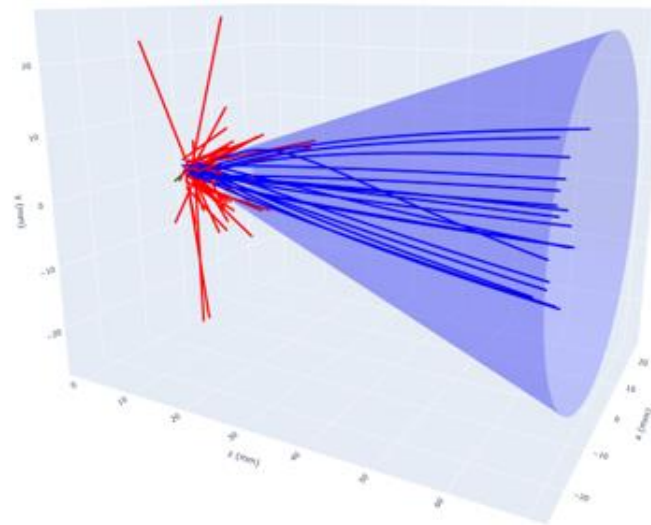


## e<sup>+</sup> Polarization vs Energy

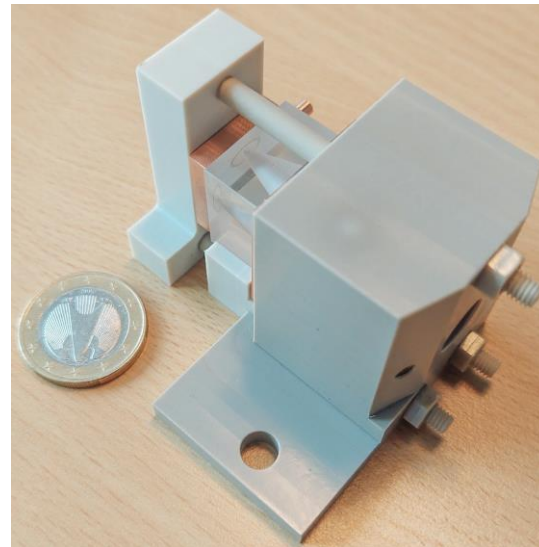
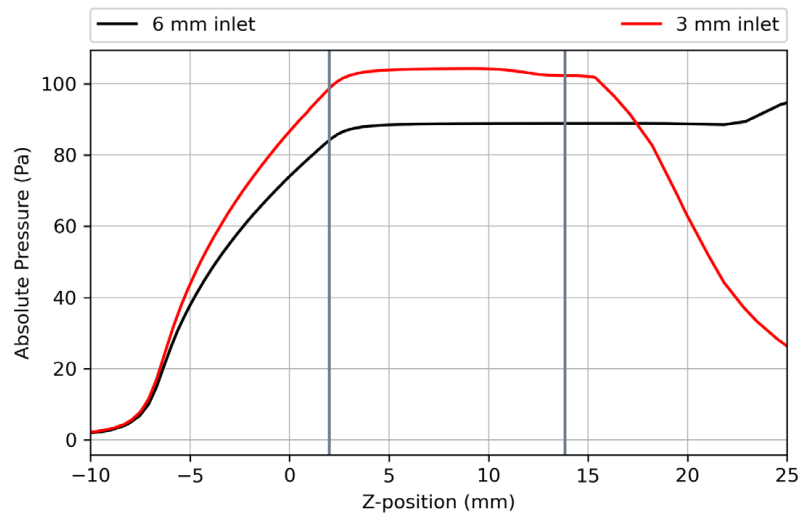
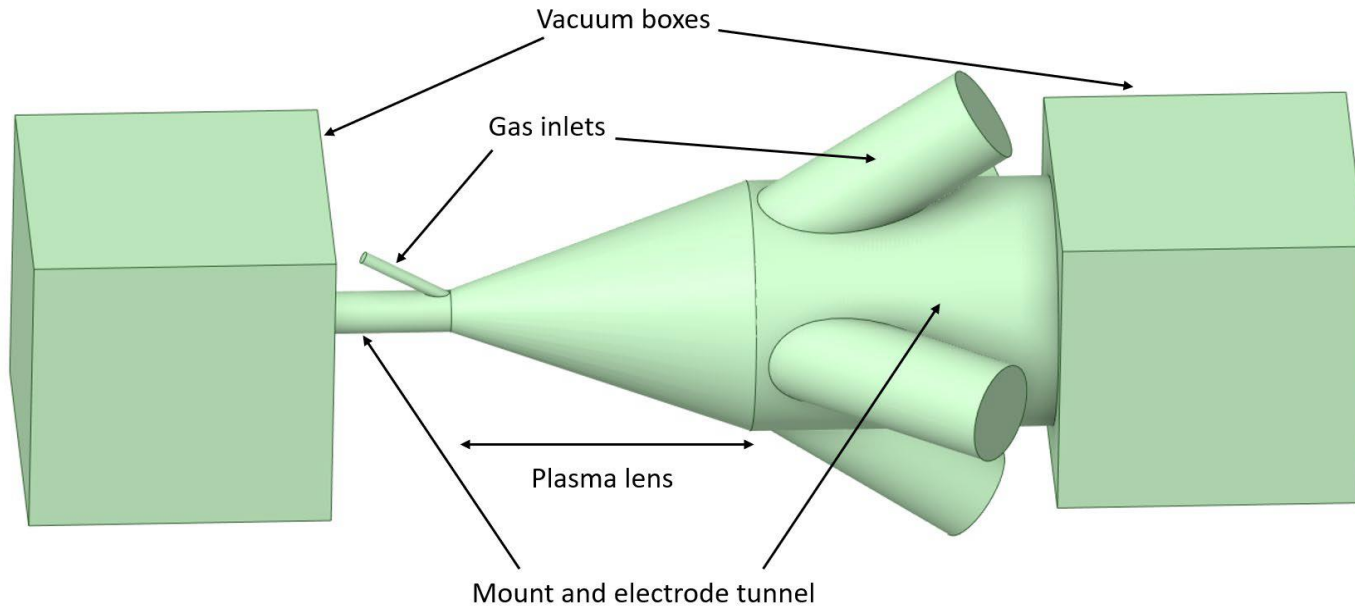


# Status Report on the Magnetohydrodynamic Simulations of a Tapered Plasma Lens for Optical Matching at the ILC e+ Source

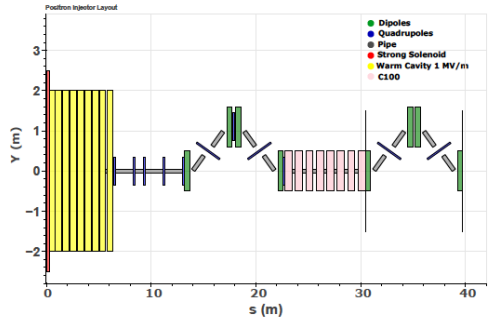
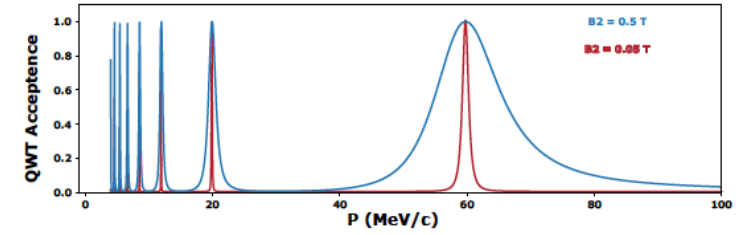
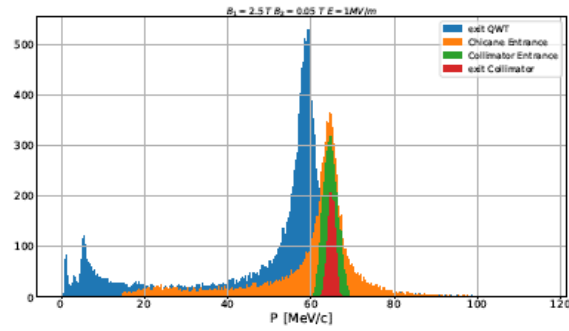
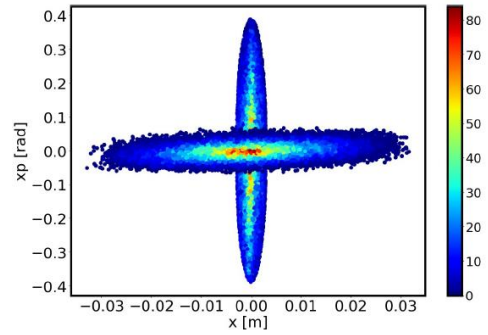
: M. Formela



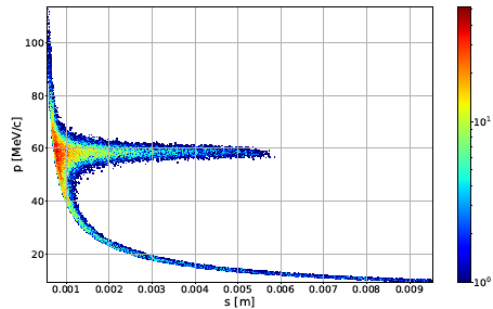




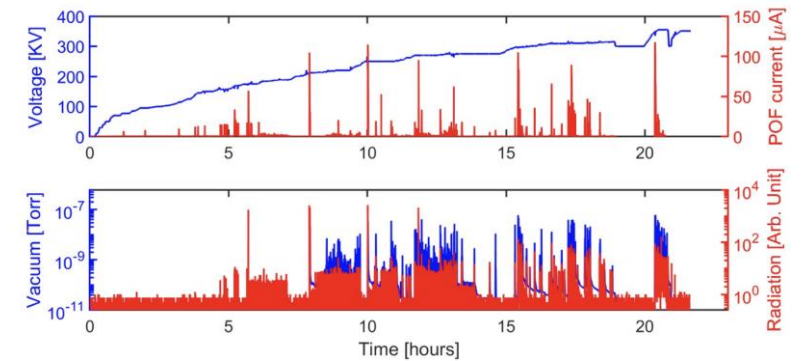
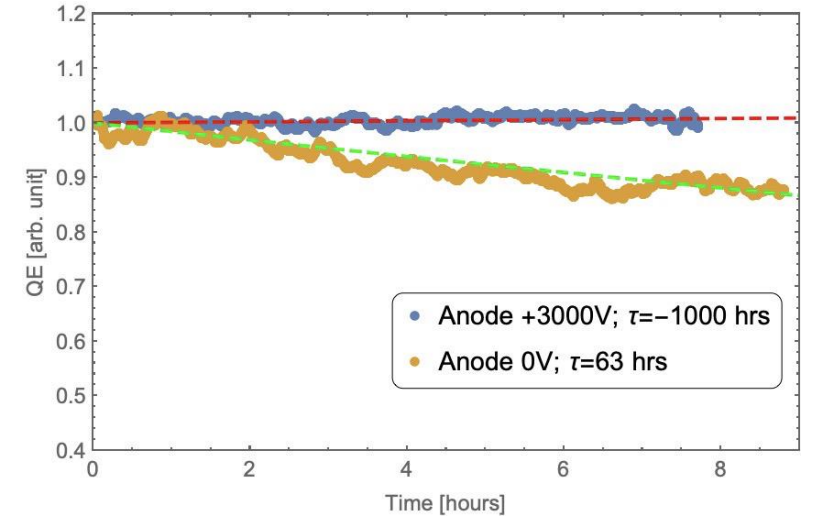
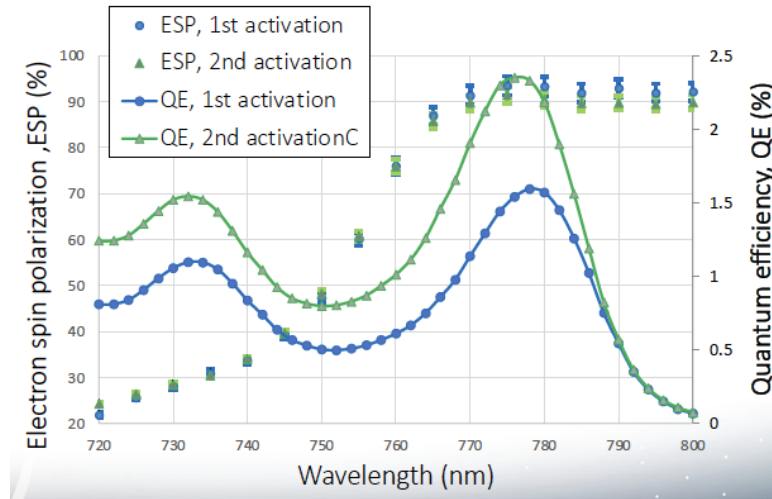
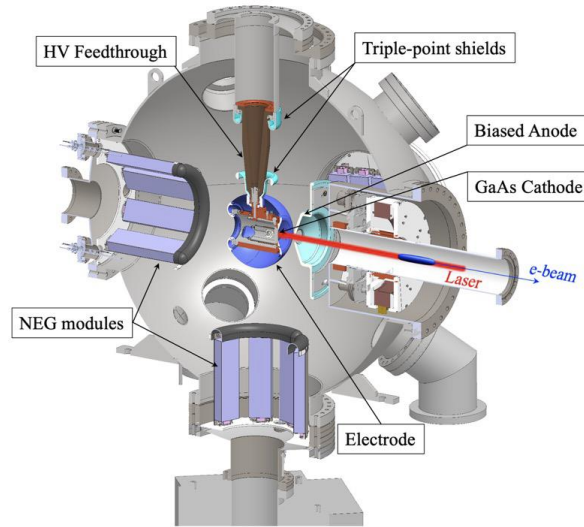
Current status of plasma diagnostics of a prototype plasma lens as an optical matching device for the ILC e+ source : N. Hamman



# Optimization of CW Polarized Positron Source for Jlab : S. Habet



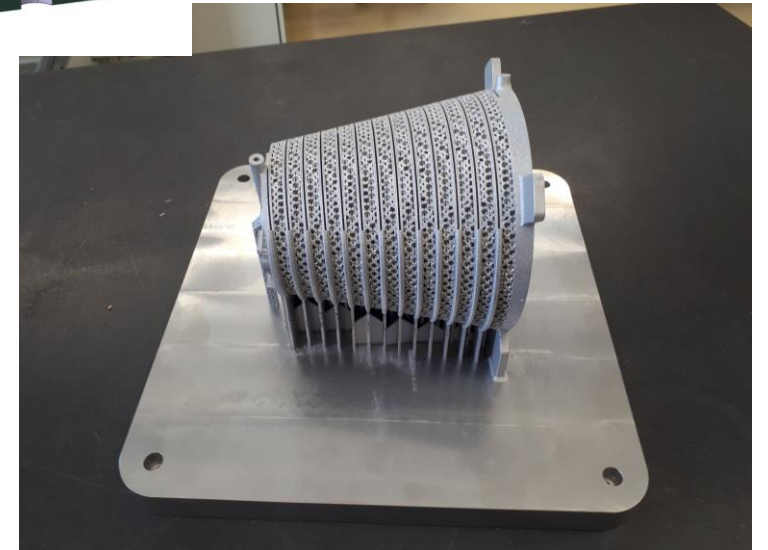
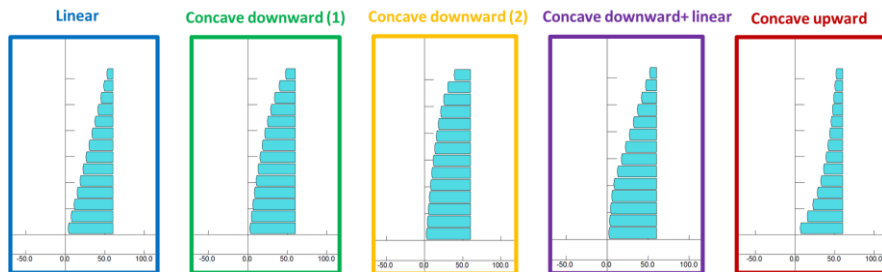
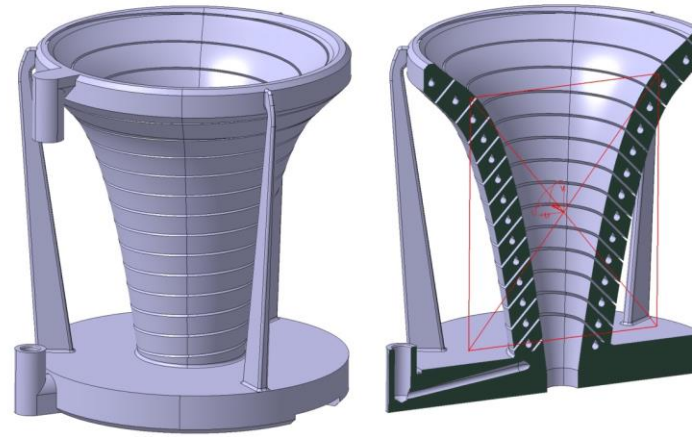
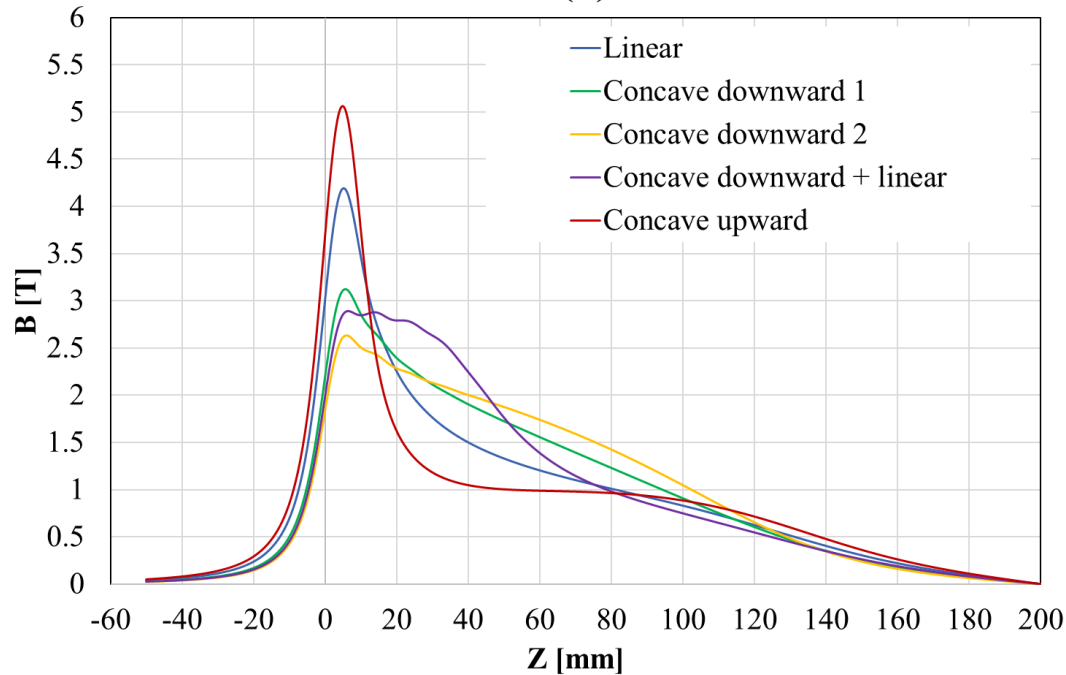
High voltage DC gun using Super lattice GaAs photocathode for EIC polarized electron source:  
E. Wang





# R&D on Flux Concentrators for positron sources: Steffen Doebert

$$B = f(Z)$$



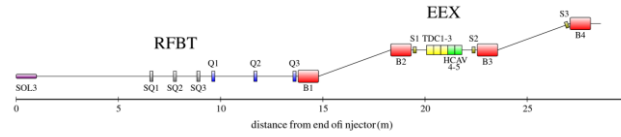
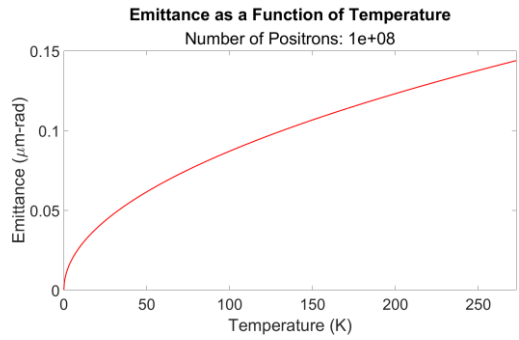
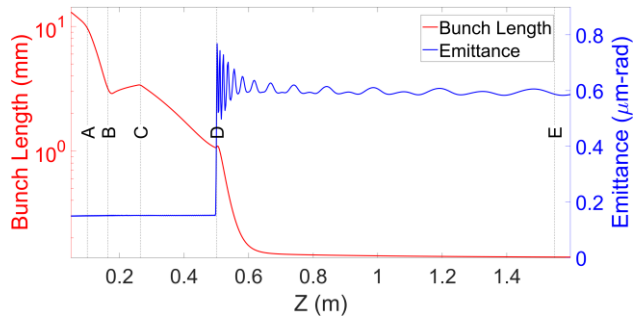
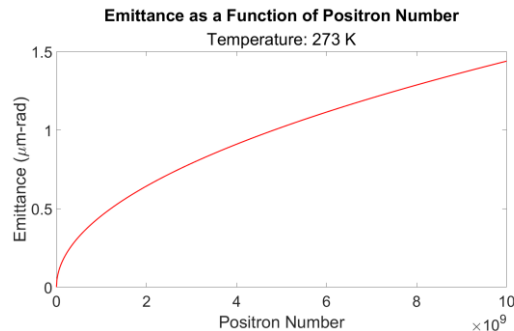
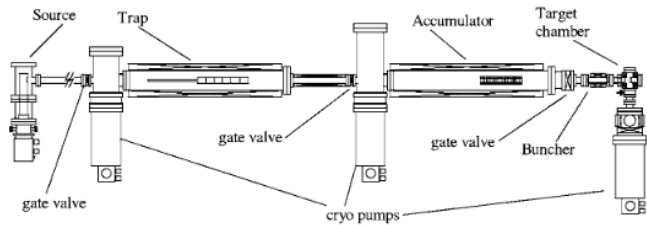


FIG. 2. Overview of the emittance manipulation beamline combining the RFBT (skew-quadropole magnets SQ1, SQ2, and SQ3) and EEX (from dipole magnet B1 to B4) insertions. The label "SQ" and "Q" refer to skew- and normal-quadropole magnets, "B" and "S" are dipole and sextupole magnets. The elements "TDC" and "HCAV" refer to transverse-deflecting and 3.9-GHz SRF cavities; "SOL3" is a solenoidal magnetic lens.



A Compact Source of Positron Beams with Small Thermal Emittance: R. Hessami

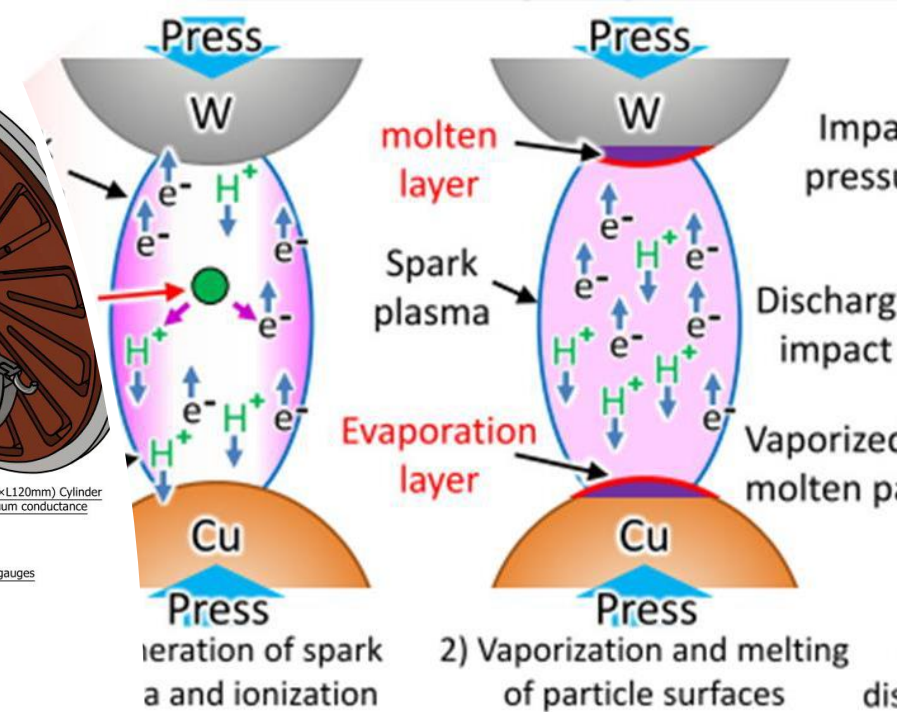
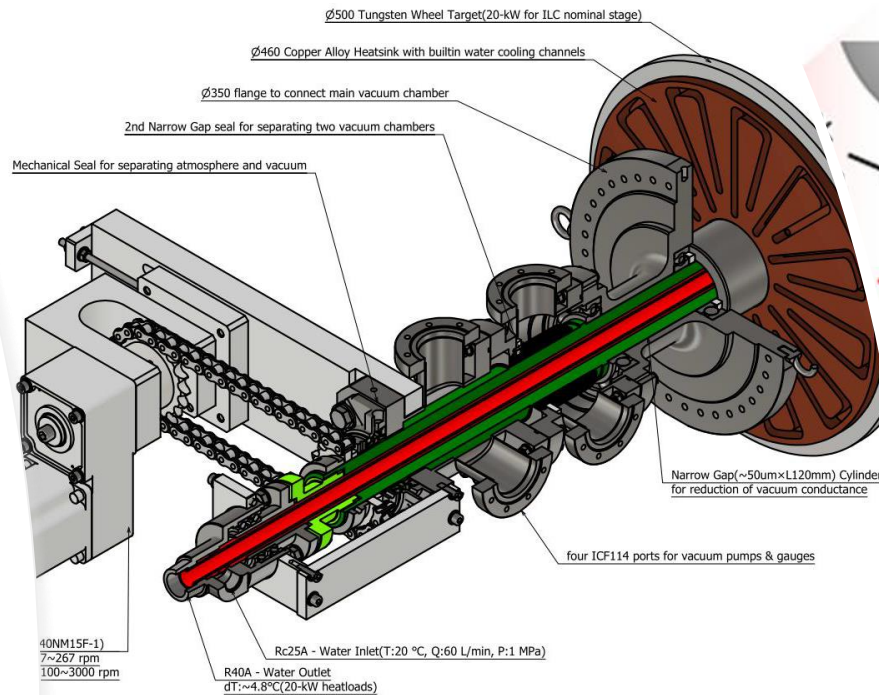






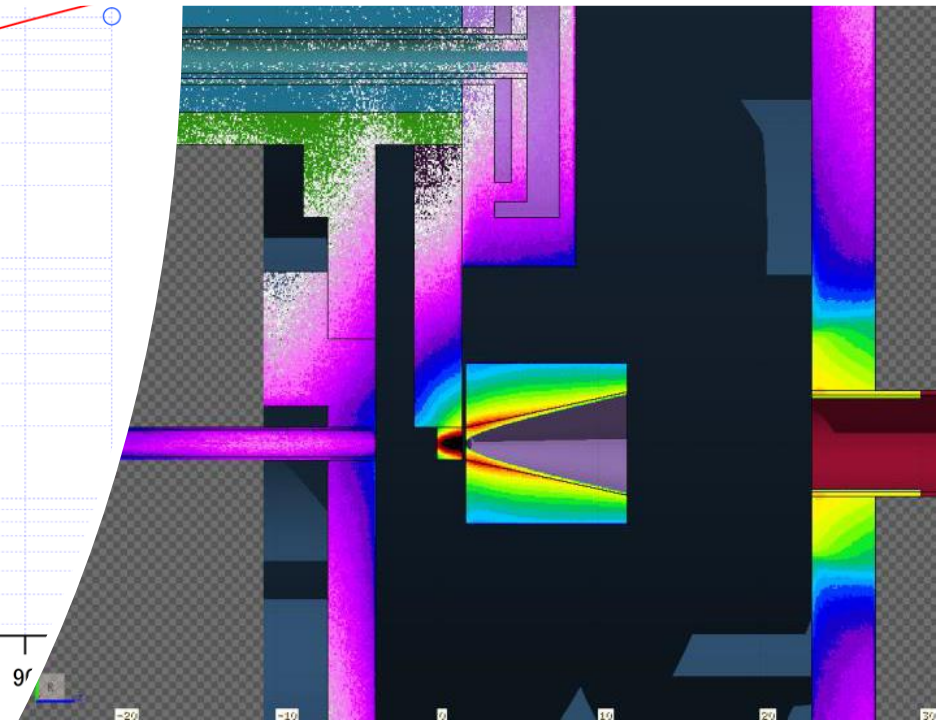
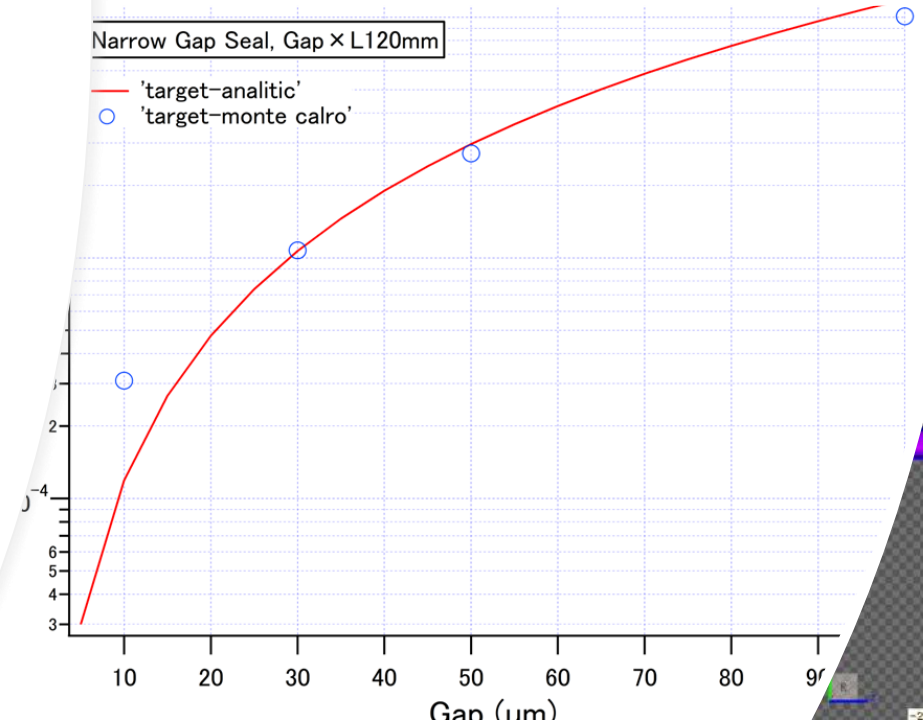
# E-Driven Target status and Plan :

Y. Morikawa



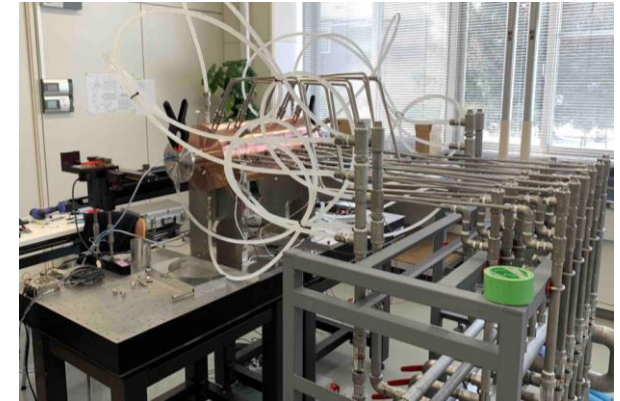
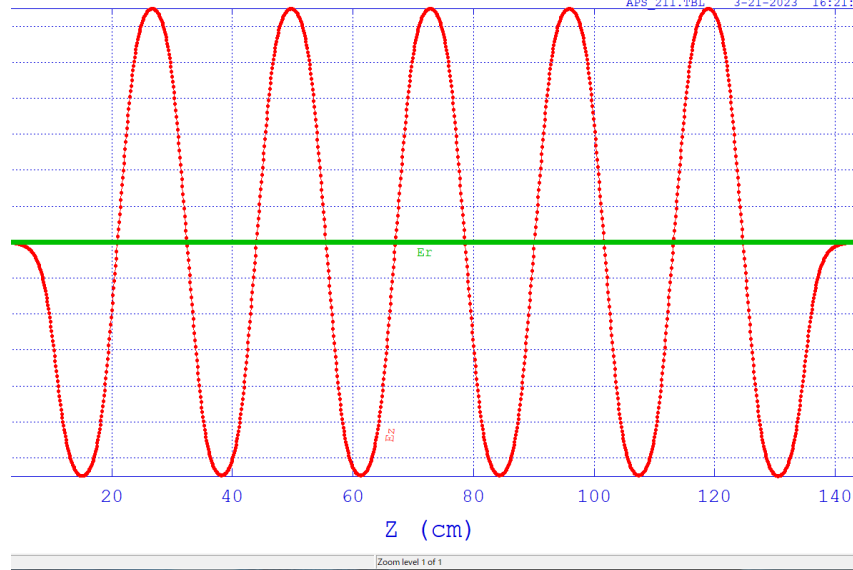
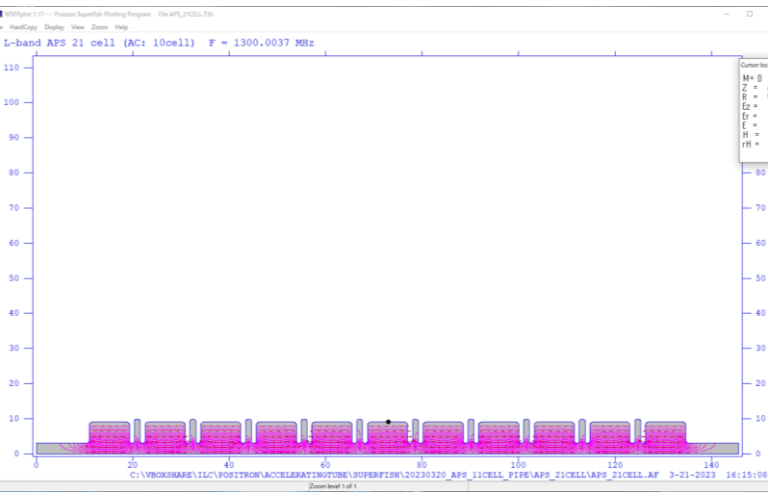
Narrow Gap Seal, Gap × L120mm

— 'target-analitic'  
 ○ 'target-monte calro'



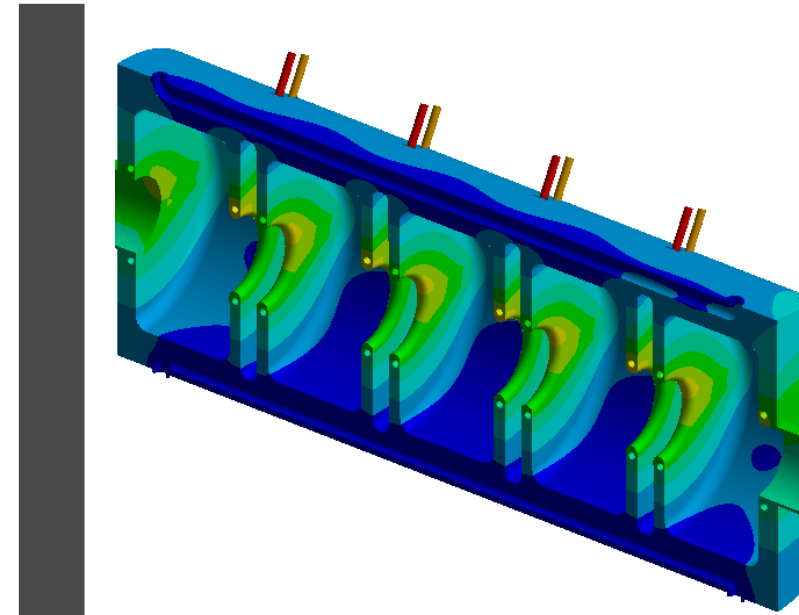
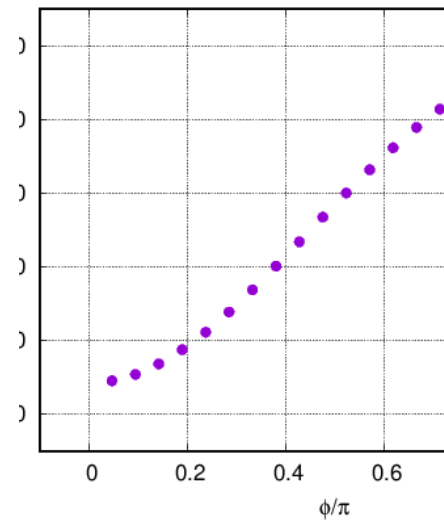
Electromagnetic field data from file APS\_21CELL.AF  
Problem title line 1: L-band APS 21 cell (AC: 10cell)

APS\_211.TBL 3-21-2023 16:21:2



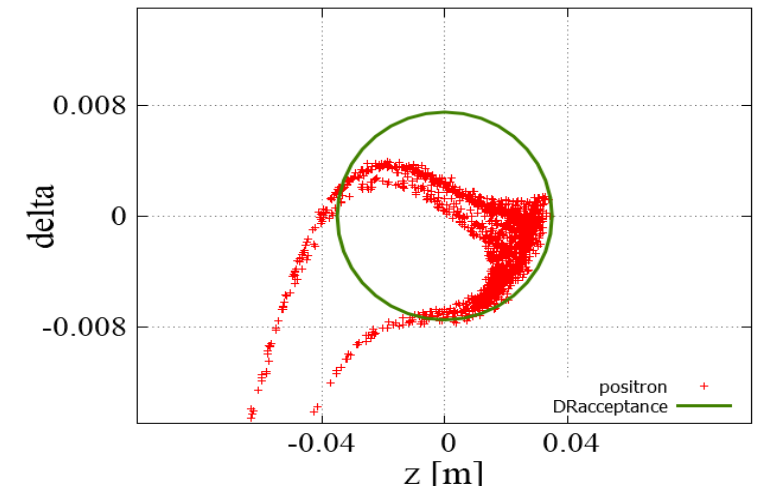
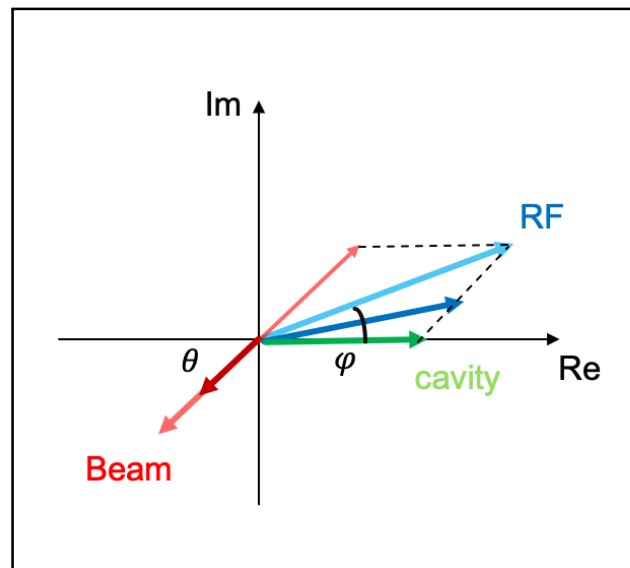
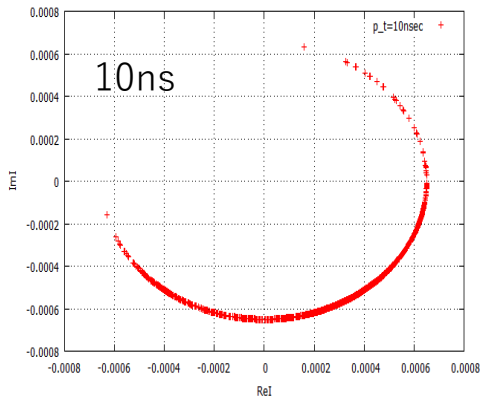
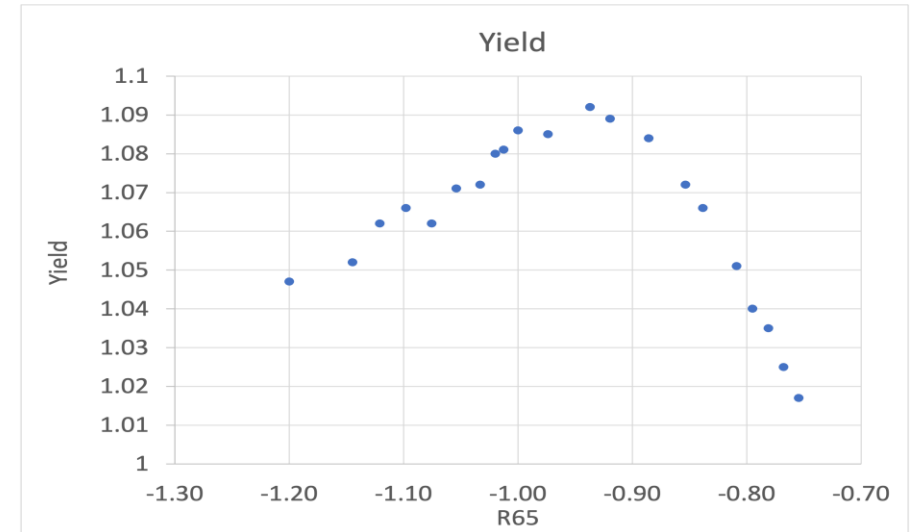
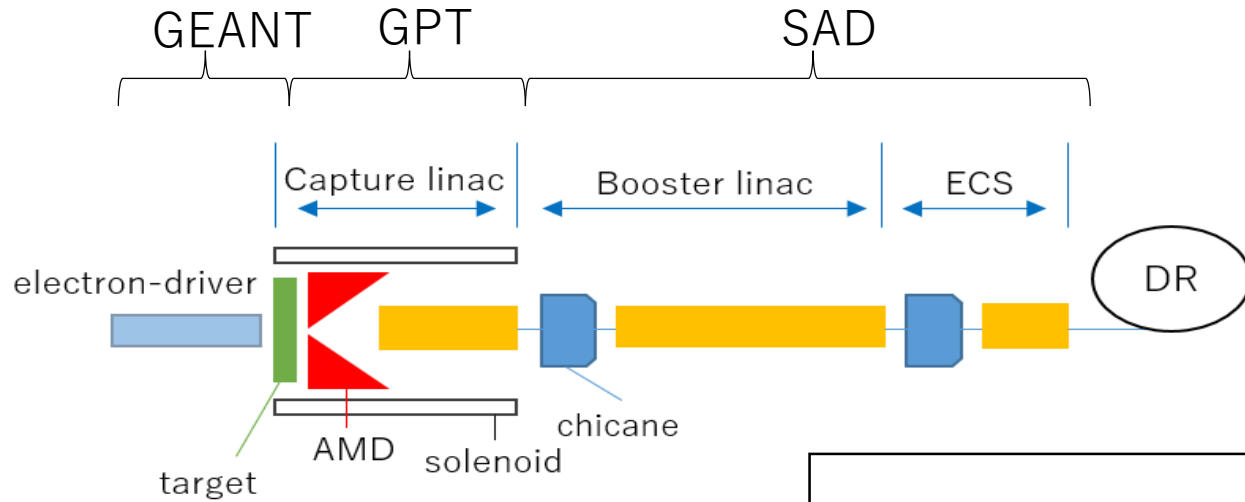
# APS cavity study : M. Fukuda

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# Positron Capture Simulation in ILC E- Drive

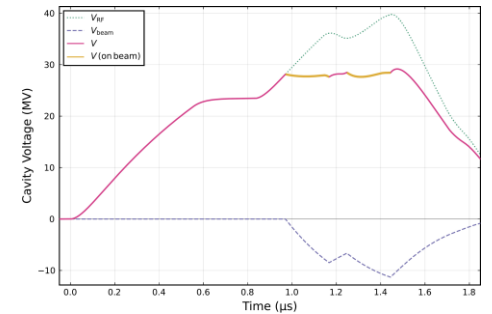
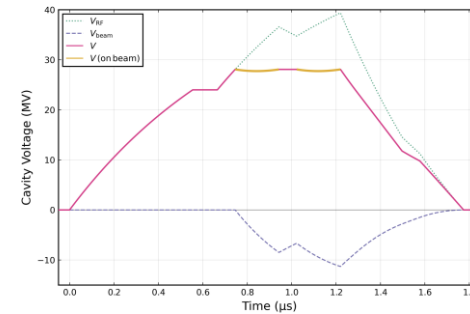
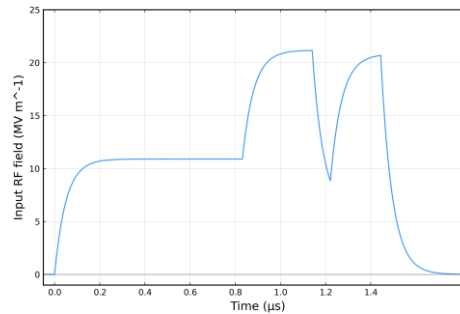
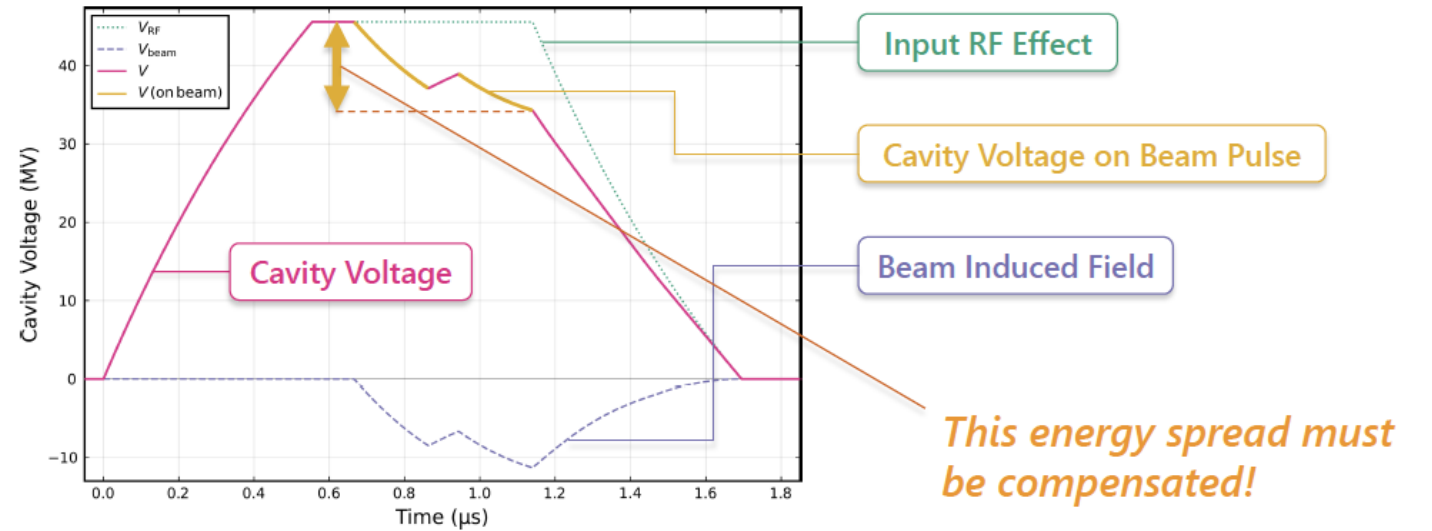
## Positron Source: M. Kuriki





# Beam loading compensation on the booster linac: S. Kuroguchi

The cavity voltage evolution with the beam loading



# Liquid Xenon Positron Target: Max Varverakis

