

# New Physics Search and Dump Calorimeter at LUXE



LUXE

**Ivo Schulthess**

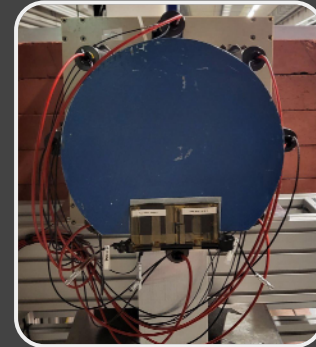
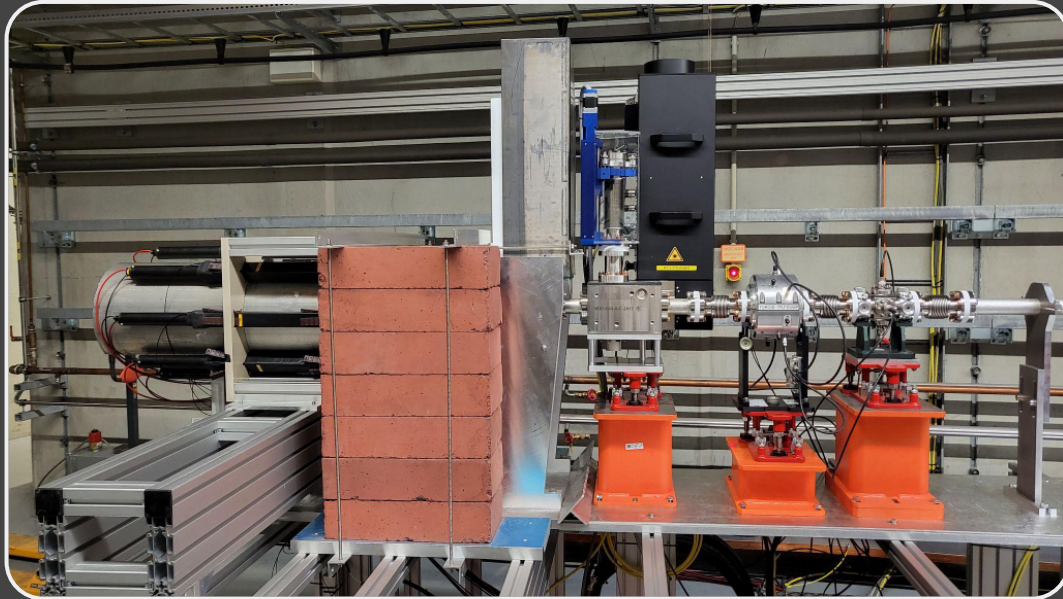
Weekly LUXE Meeting

Deutsches Elektronen-Synchrotron DESY

# 2024 - KW12

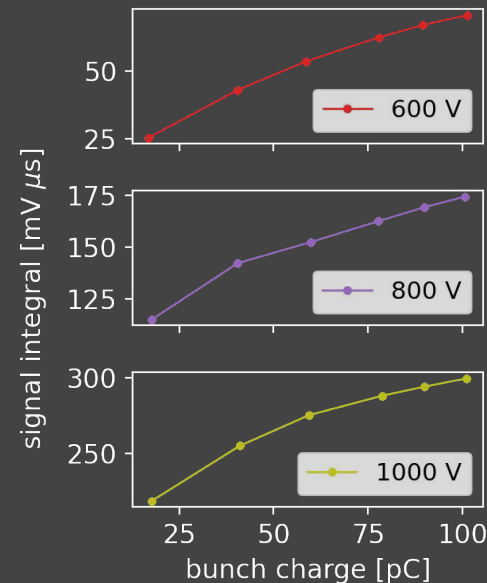
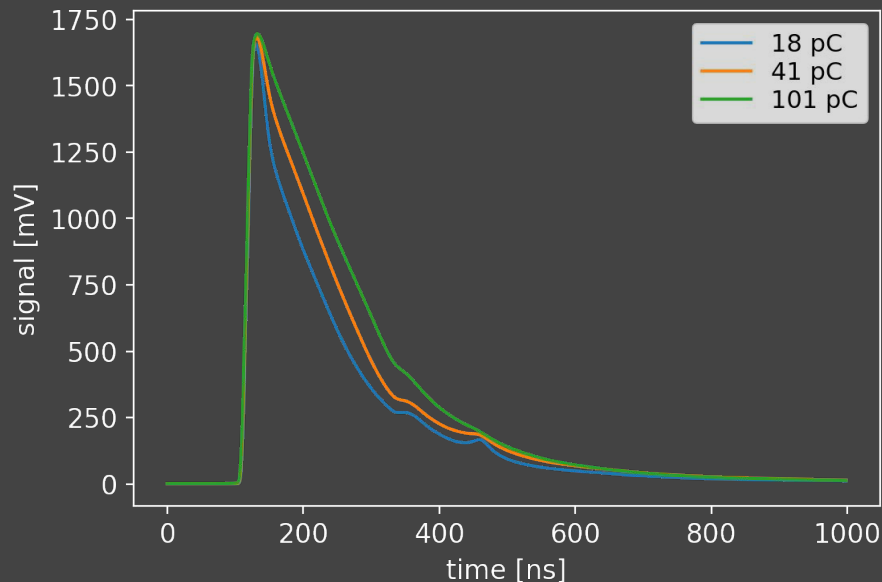
# Dump Leakage Calorimeter

## FLASHForward Upgrade (03.2024)



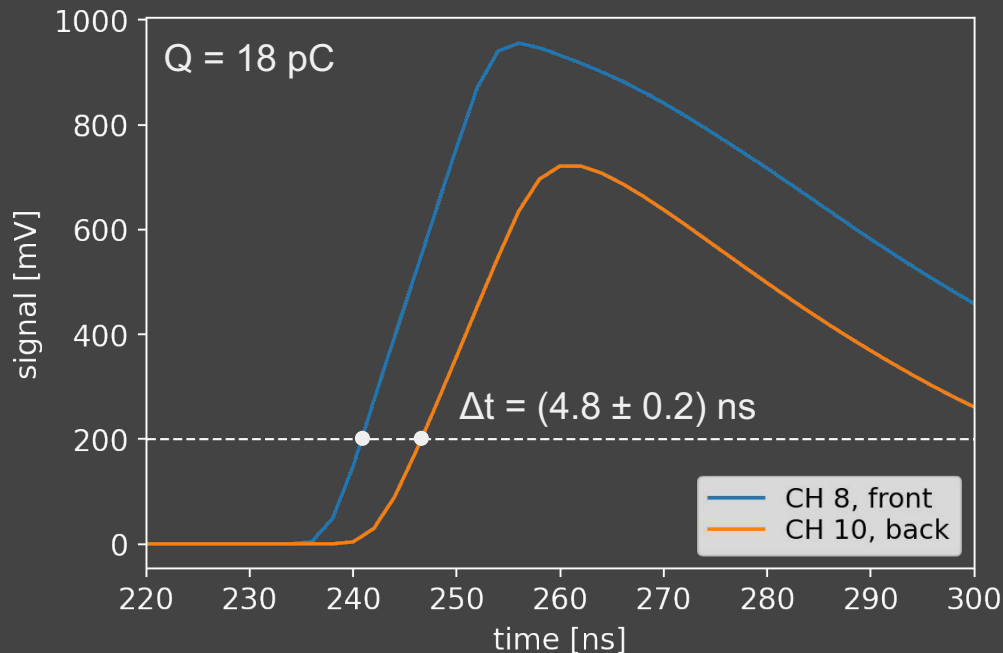
# Dump Leakage Calorimeter

Bunch Charge (FLASHForward, 03.2024)



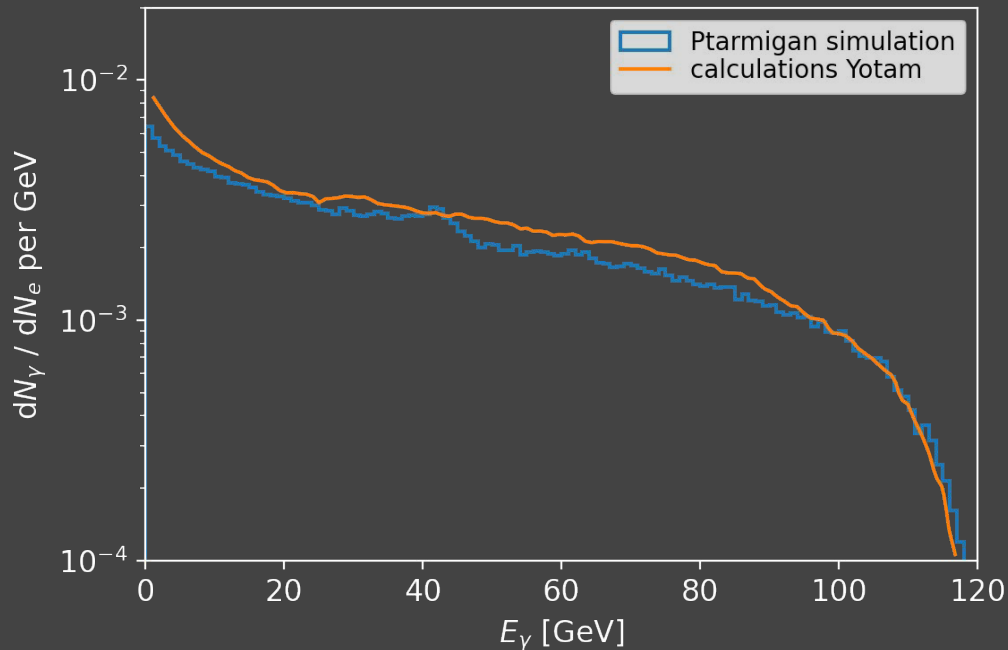
# Dump Leakage Calorimeter

Bunch Timing (FLASHForward, 03.2024)



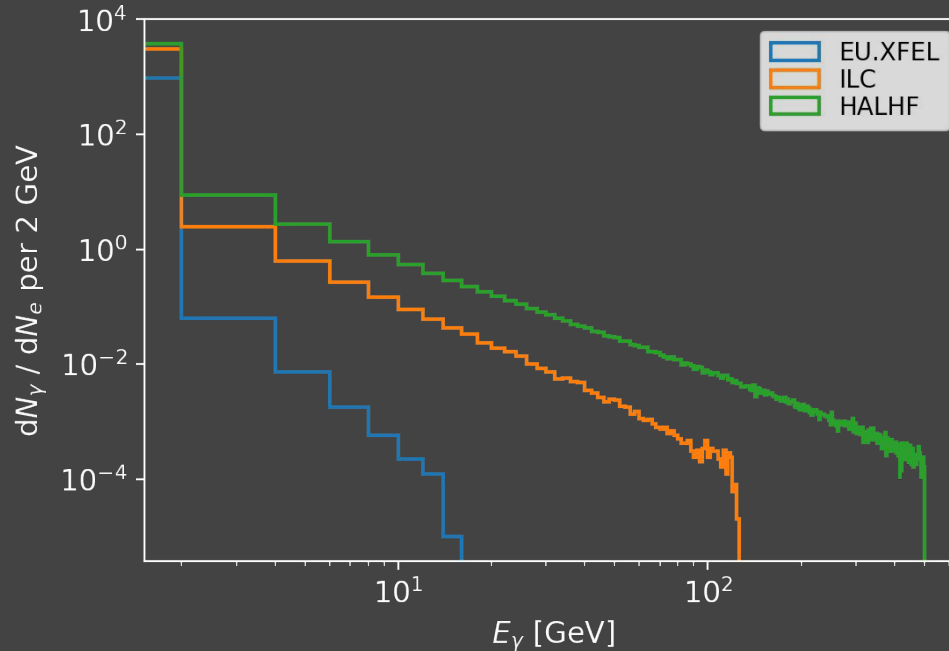
# NPOD for Future Facilities

ILC with LUXE Phase-0 Laser 40 TW System ( $a_0 = 3$ )



# NPOD for Future Facilities

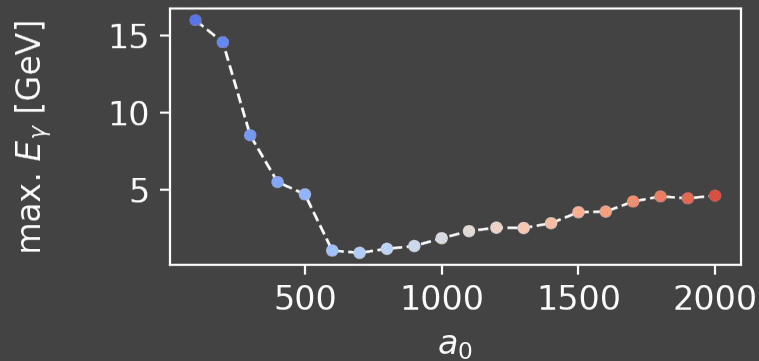
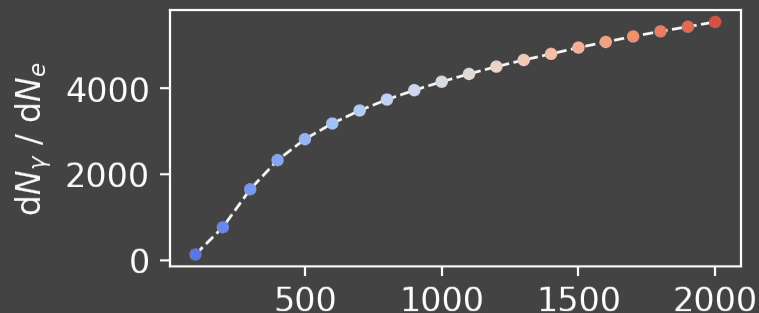
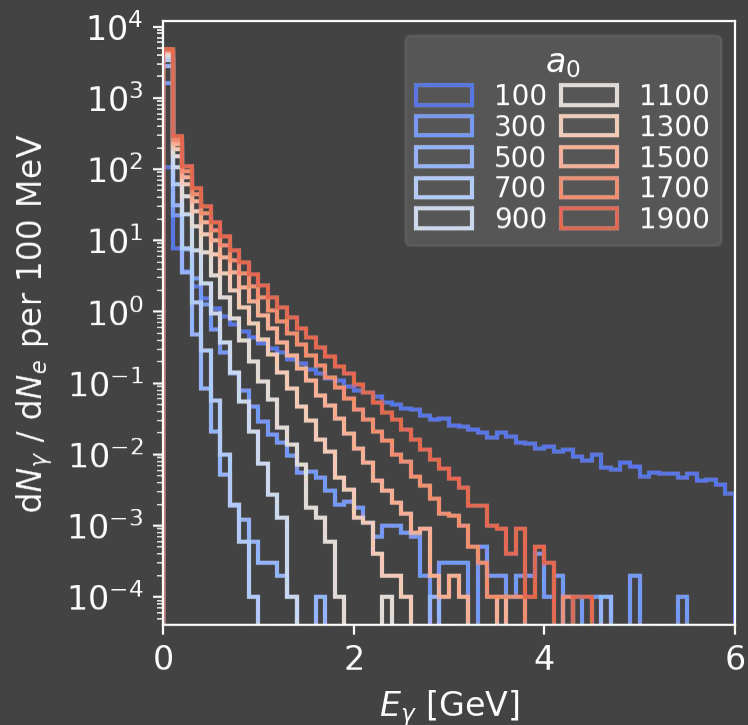
Particle Facilities with 4 / 10 PW Laser Systems ( $a_0 = 220$ )



EU.XFEL: 945  
ILC: 3063  
HALHF: 3826

# NPOD for Future Facilities

## EU.XFEL Collisions with Ultra-High Laser Intensities





# LUXE Theory Workshop

## For Experimentalists

### **idea:**

- get intuition for theory and concepts
- workshop environment (more discussions than presentations)
- leading questions in advance
- (including exercises and calculations)

### **example questions:**

- how do we do "full QED calculations" if we are not perturbative?
- why is the tunneling domain  $\chi < 1$  even though it is a quantum concept?
- how does  $\alpha\chi^{2/3} = 1$  become a limit?