

ILC Beam dump experiment (H2)

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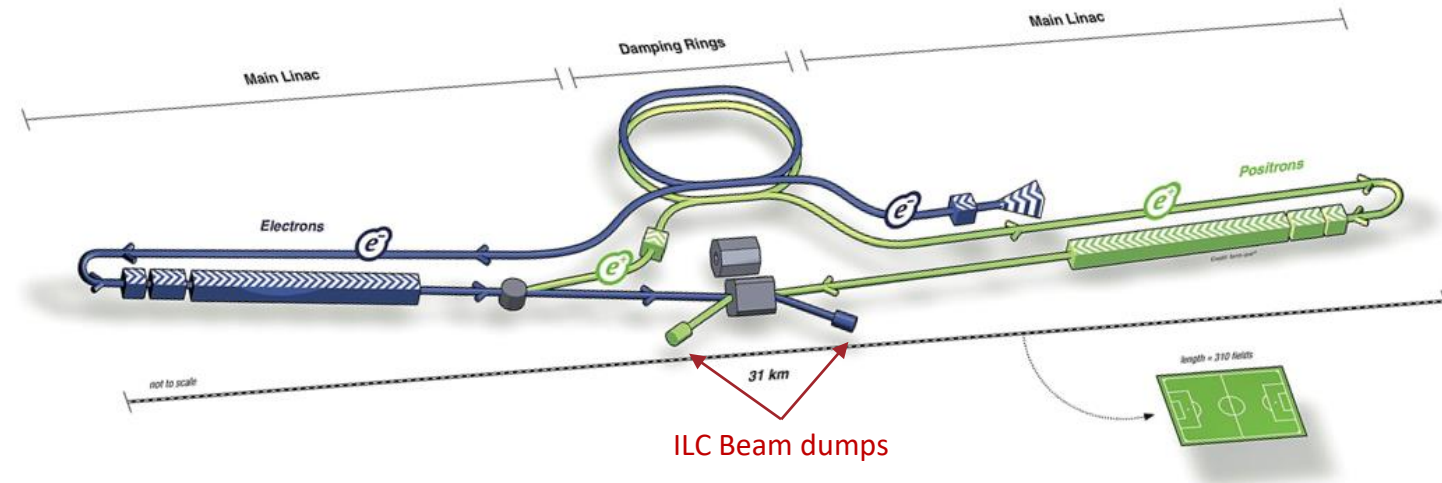
[PS/SPS User Meeting \(30 mai 2024\) · Indico \(cern.ch\)](#)

[EDMS 3094537](#)

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Physics goal



Context:

- Main beam dumps of **ILC (International Linear Collider)** have been proposed as **irradiation facilities** (Sakaki et al, NIMA 1050 (2023) 168144 <https://doi.org/10.1016/j.nima.2023.168144>)

Goal of the present experimental activity:

- Obtain experimental benchmark data of **secondary particles** from ILC-like beam dump targets irradiated by multi-GeV e^- and e^+ beams:
 - Forward **μ pairs** produced from the interaction between e^+ and atomic e^-
 - **Neutrons**

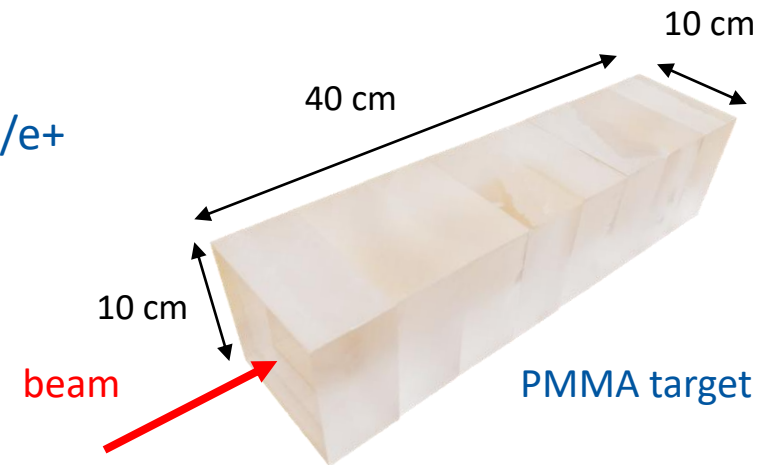
beam parameters and installation (1)

Coordinates:

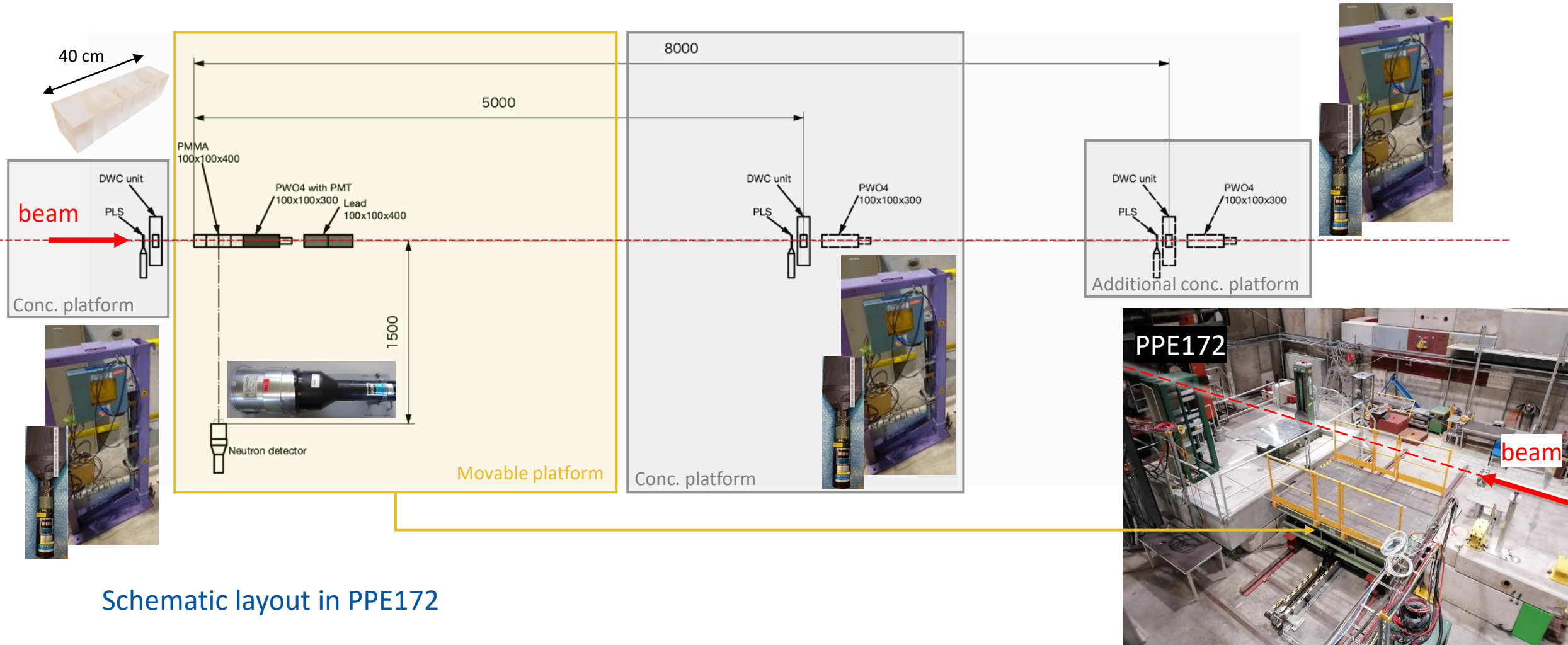
- PPE172, H2 – we initially applied for beamtime in H4
- June 5-12, 2024 – available to start installation earlier (Monday June 3)
- Control Room HNA383

Beam parameters:

- **40 and 60 GeV/c**
 - e⁻ and e⁺: 10^5 particles/spill
 - π^- and π^+ $< 10^5$ particles/spill (To subtract hadron contribution in e⁻/e⁺ beams)
- **Spot size:** less than 2 cm on our PMMA target
- **Controls:** spill start signal



beam parameters and installation (2)



Schematic layout in PPE172

Current status

- **Experimental equipment from KEK**
 - Shipped to CERN
 - Currently landed in France and on its way to CERN (Prevessin)
- **Equipment from CERN**
 - PMMA Target and Pb shielding blocks available
 - 2 DWC and 2 PCS requested and reserved
 - Signal, HV and power cables requested and reserved
 - PbWO4 calorimeter with PMT requested and reserved
 - NIM frames and electronics modules already retrieved from electronics pool
- **Infrastructure**
 - Coordination with Michael Lazzaroni and Silvia Schuh (BE-EA) for additional concrete platform, target/detector stands, and setup modifications during the exp. week.
 - **Early installation** (Mo. June 3) of DWC, supports, and zone preparation to be decided with BE-EA



Preparation is on track!



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