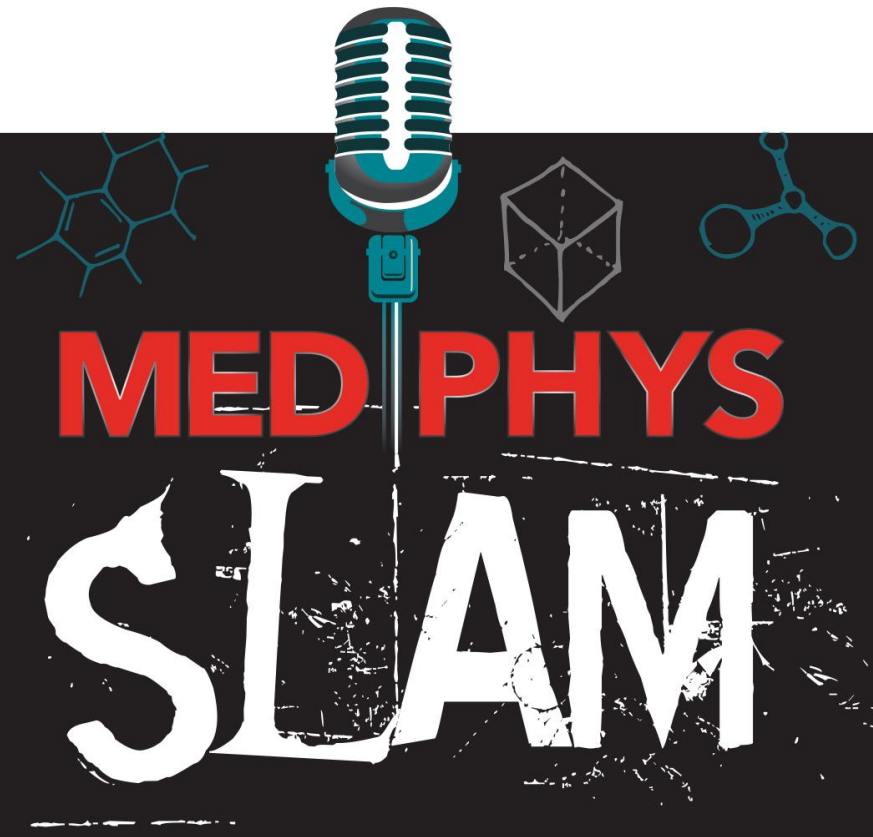


Measuring and Adjusting Super-Fast FLASH Irradiations



Austin Sloop, Kevin Willy, Anoill Youkhaneh,
David Gladstone, Brian Pogue, Petr Bruza

Dartmouth College

NEAAPM, February 6, 2026



Standard Hospital Linacs measure radiation (flour) as it is poured



Radiation is continually monitored to ensure the right amount is delivered

The beam is directly measured

We call this unit of dose (flour) the **MU** (like gram)

How we delivered high-intensity radiation



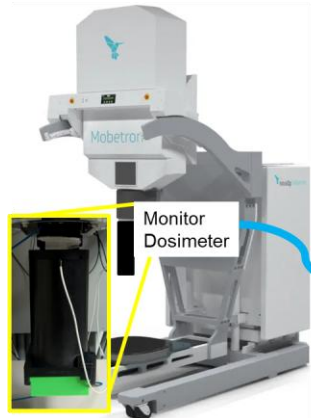
Number and size of the pulses is guessed beforehand

Dose is checked after delivery

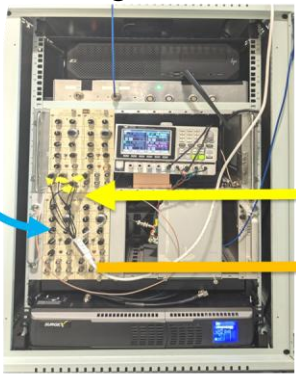
No capability to account for errors (lighter or heavier bags)

DeFrancisco et. al. J Appl Clin Med Phys. 2025

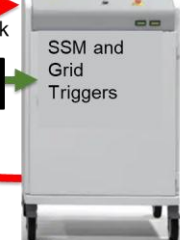
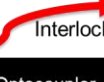
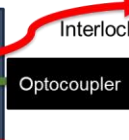
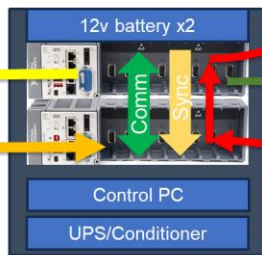
My control platform measures and targets the “flour”



Analog “Scales”



FPGA Cabinet



Every pulse is measured

A computer determines if the target can be reached in one more pulse and adjusts its size.

Once the target is reached, then the delivery stops.

