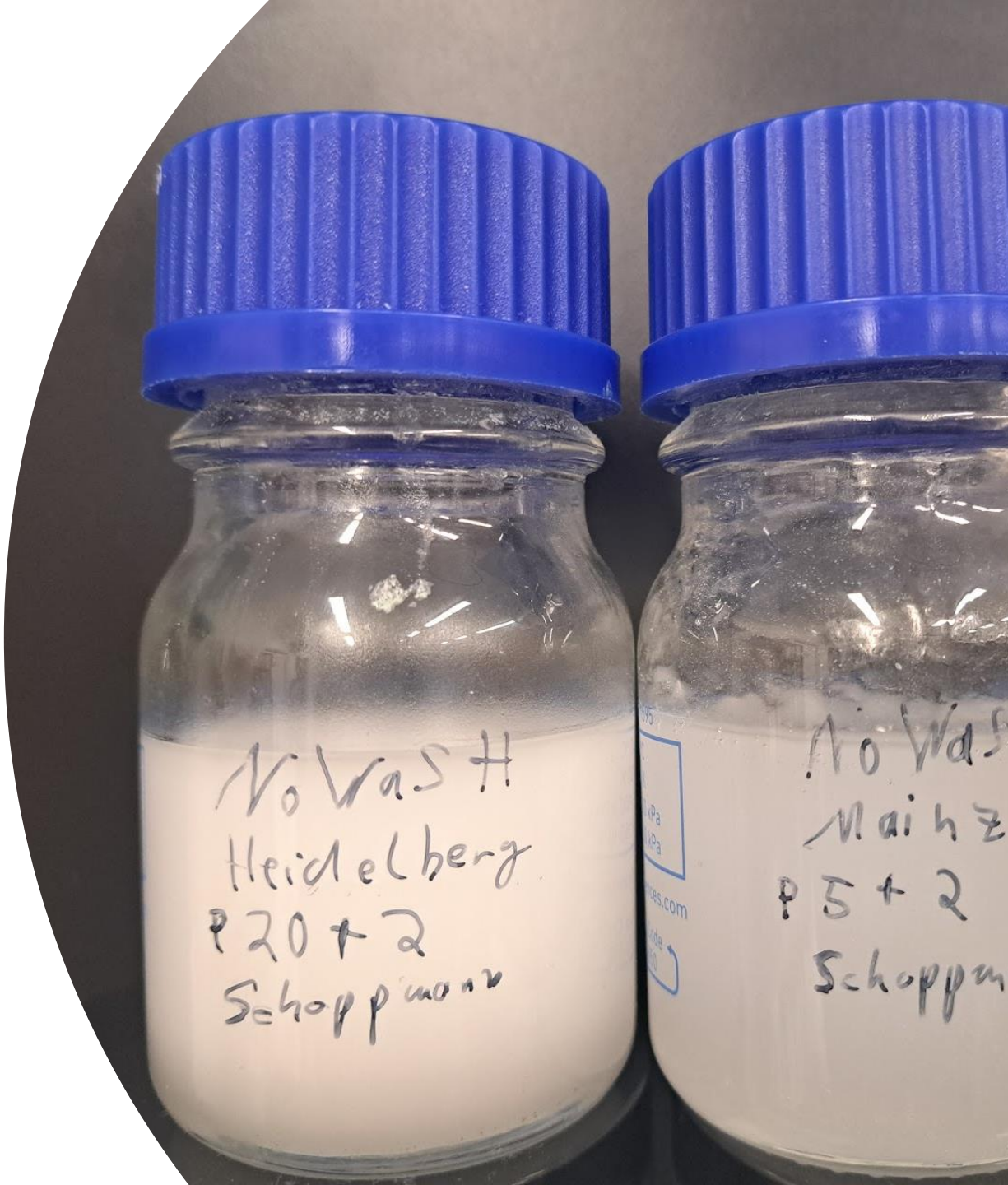
LiquidO at Sussex

NuPhys 2023

3 Minute Poster Talk

Jess Lock

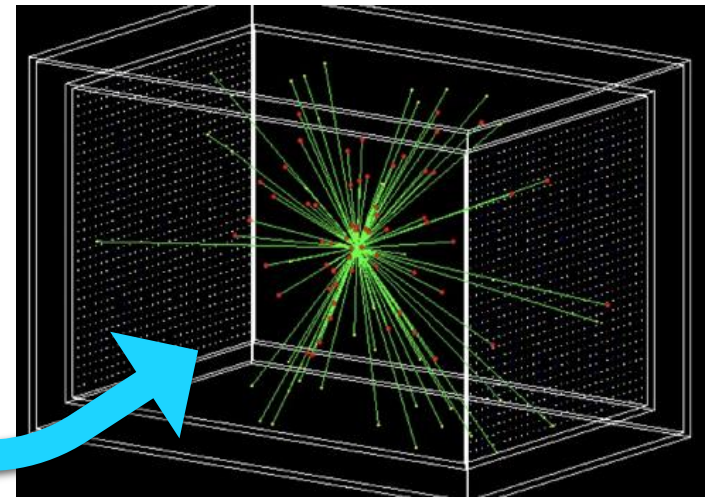
UNIVERSITY OF SUSSEX

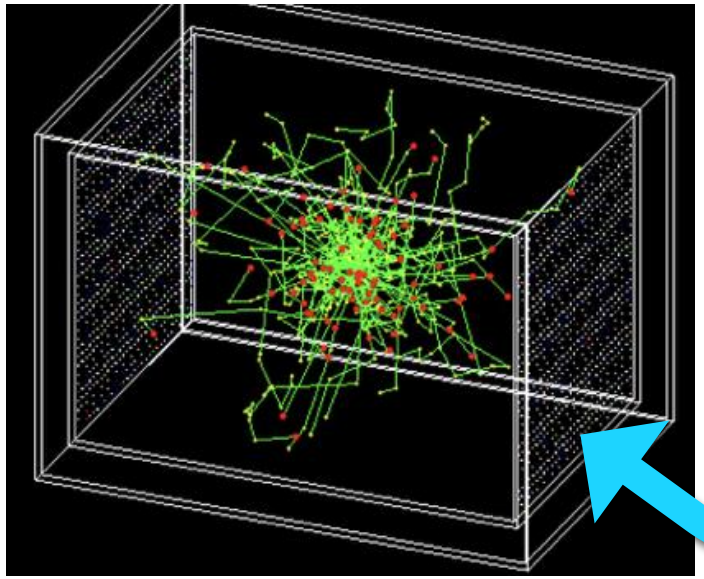


LiquidO Technology

Typical scintillator technology:

- Scintillator as optically clear as possible to allow photons to reach photodetectors





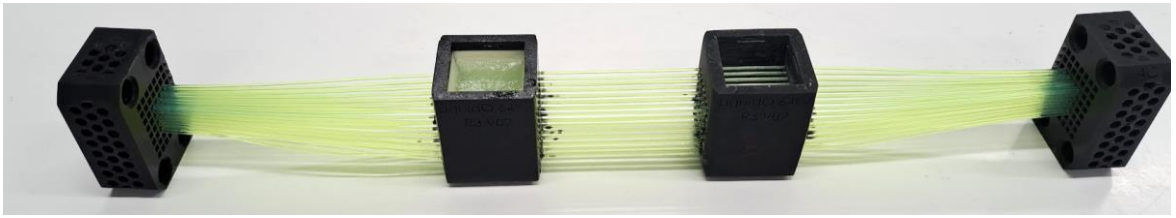
LiquidO technology:

- Scintillator has short scattering length to confine photons to area of production
- Arrays of fibres collect light

On Wednesday, David Petyt has a talk about LiquidO!

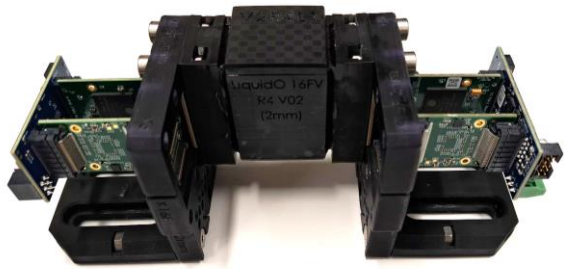
Prototypes at Sussex

Prototype 1



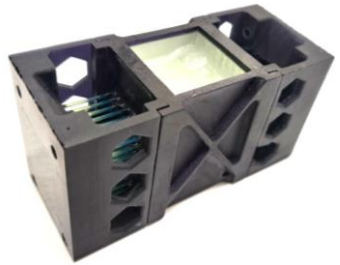
- 8x8 fibre array
- 4 fibres to 1 SiPM

Prototype 2
(with electronics attached)



- 4x4 fibre array
- 1 fibre to 1 SiPM
- Different fibres
- Condensed design

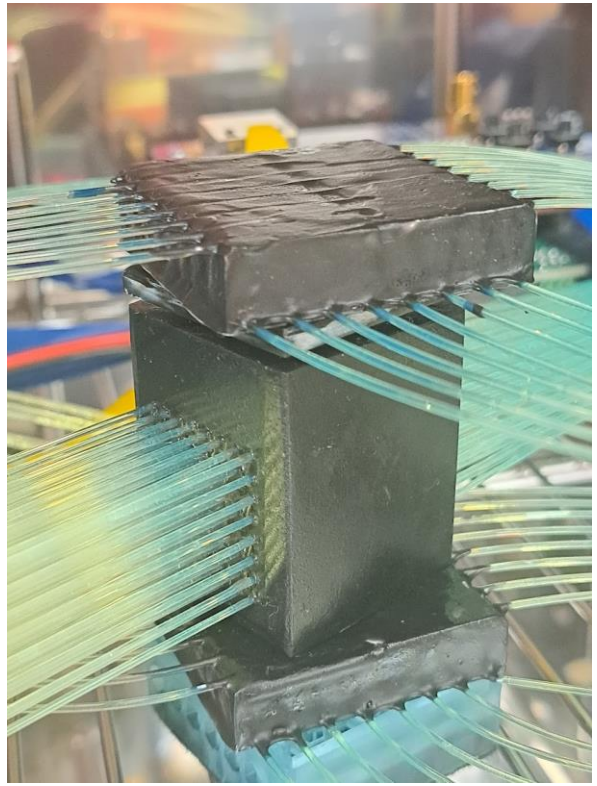
Prototype 3



- 8x8 fibre array
- 1 fibre to 1 SiPM
- Original fibres
- Better inner coating

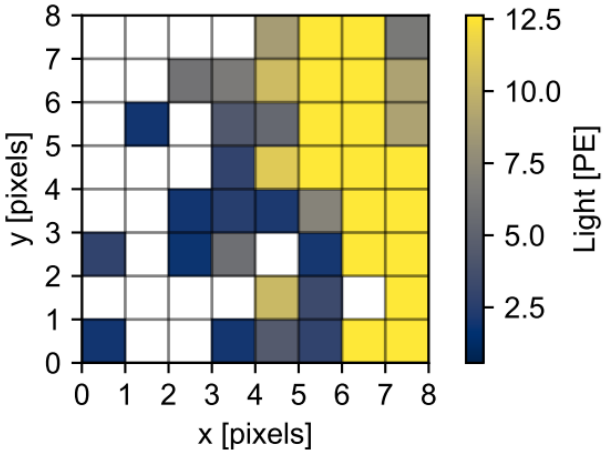
Muons

- Use plastic scintillator from MINOS to make optically isolated muon taggers



^ Prototype 1 + Tagger

- Make selection cuts for high purity muon samples
- Use muons as a source for material comparisons
- Upcoming ‘Tile’ prototype for LiquidO muon analysis



^ selected muon event in the third prototype

Tile prototype with laser shining to demonstrate reconstruction →