

Stuart George

ESR 4

About Me

- ✱ Stuart George
- ✱ ESR 4
- ✱ Hosting Institution : CERN



GENEVA, SWITZERLAND

THE WEATHER IS MOSTLY BAD HERE

About Me

- ✱ Stuart George
- ✱ ESR 4
- ✱ Hosting Institution : CERN
- ✱ PhD Candidate at the University of Wollongong, Australia



WOLLONGONG, AUSTRALIA

THE WEATHER IS INSANELY GOOD HERE

Training

- ✱ Designing Effective Websites course (CERN)
- ✱ GEM Detector Assembly and Construction (INFN, Frascati)



Training

- ✱ Designing Effective Websites course (CERN)
- ✱ GEM Detector Assembly and Construction (INFN, Frascati)
- ✱ French Language Lessons
- ✱ Computing tools, ROOT, Geant4, C++, Shell Scripting etc
- ✱ Two month secondment in Australia



Training - Conferences

- * IEEE Nuclear Science Symposium 2012 (Los Angeles, California), 2013 (Seoul, South Korea)
- * Eurados Working Group 9 (Krakow), Congress (Barcelona)
- * Medipix Meetings (CERN)
- * ARDENT Meetings



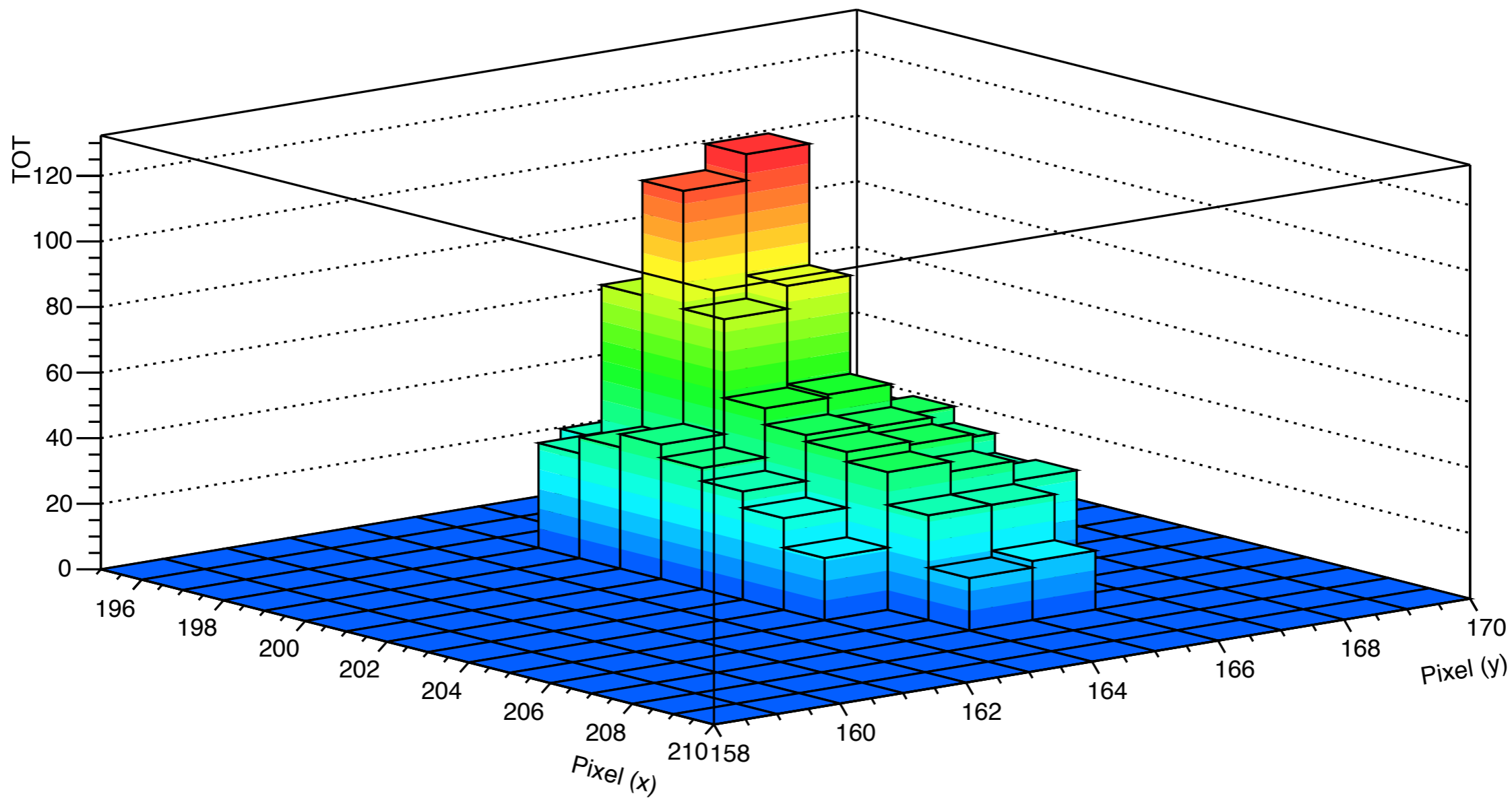
Research

- ✱ I work with a pixel detector called Timepix



Research

- ✱ I work with a pixel detector called Timepix
- ✱ With the Timepix you can “see” the radiation as it passes through the detector
- ✱ Different kinds of radiation ‘look’ different

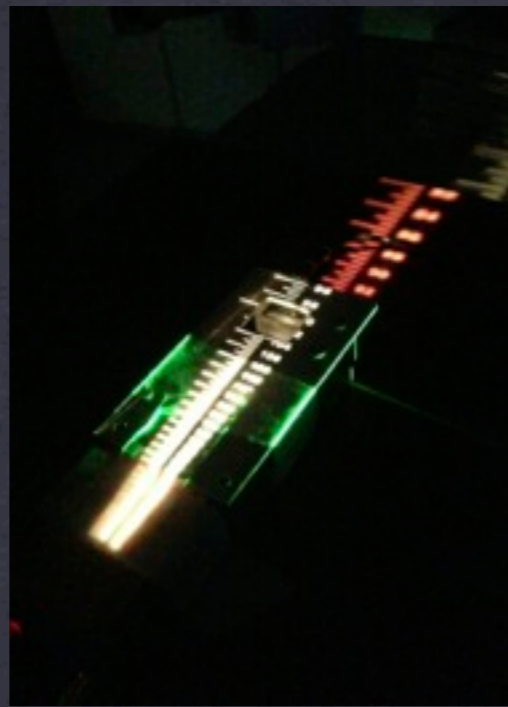
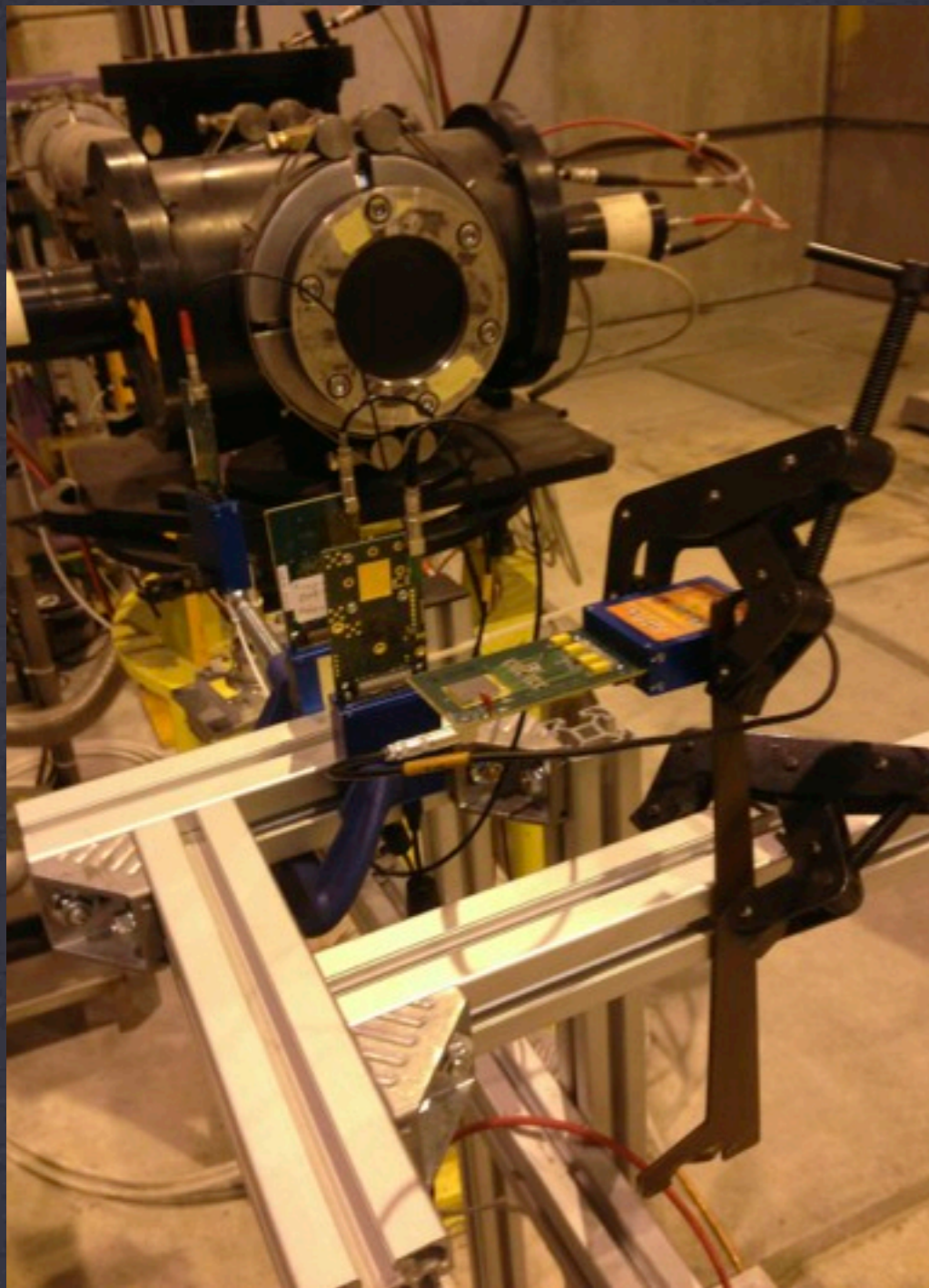


Research Objectives

- * We want to use the Timepix to build an advanced **dosimeter** that:
 - * Works in mixed fields
 - * Is compact, easy to use and works online
- * We want to use the Timepix to perform **clinically relevant** measurements in hadron therapy facilities

What Have We Done?

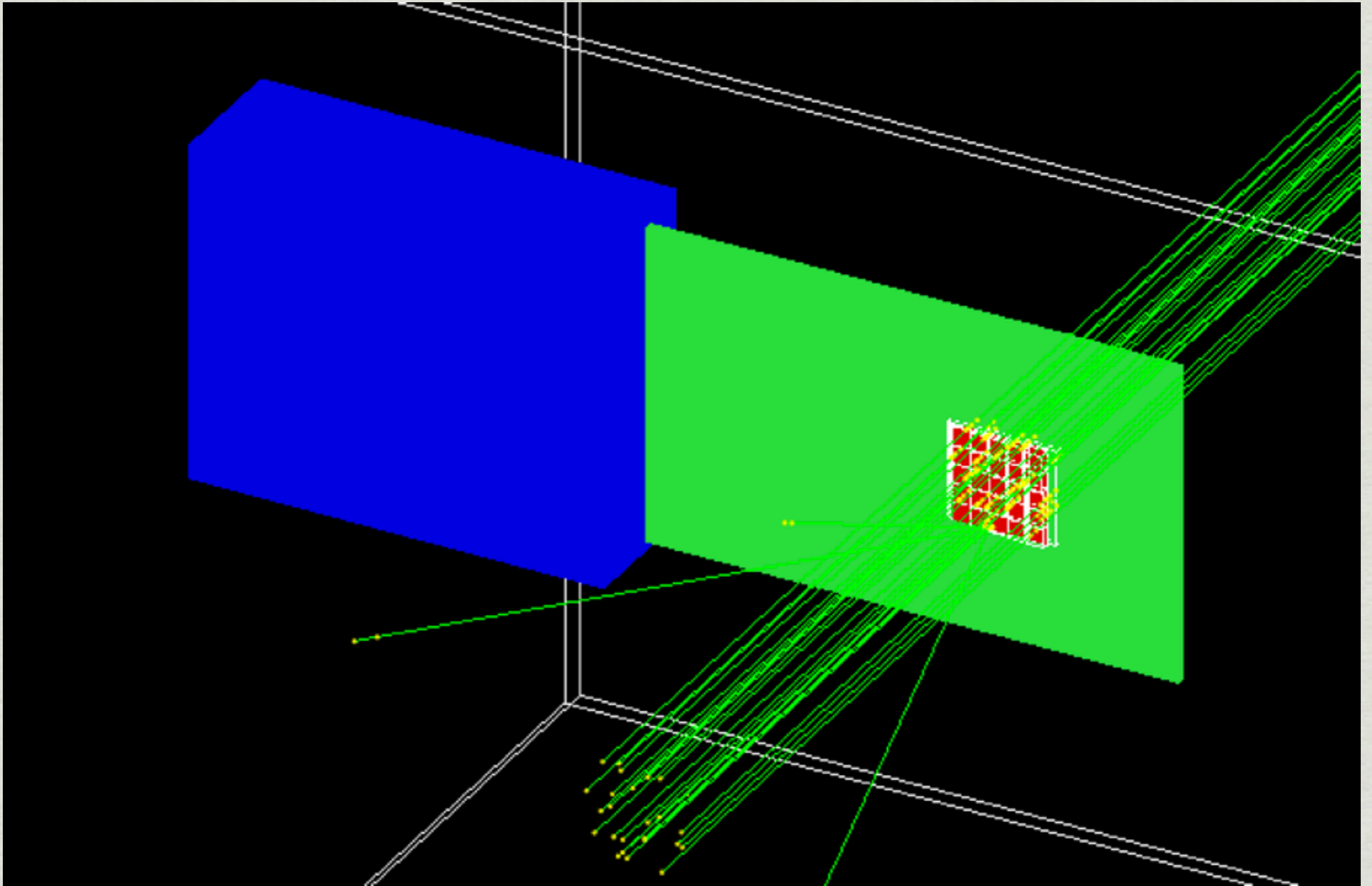
- ✱ We have taken the Timepix to experimental facilities



FROM LEFT TO RIGHT, TOP TO BOTTOM
THE H8 BEAMLIN, CERN,
A MEDICAL LINAC, ST GEORGE'S CANCER CARE CENTRE, SYDNEY, AUSTRALIA
THE CERF FACILITY, CERN
A MEDICAL PROTON CYCLOTRON, BERN, SWITZERLAND

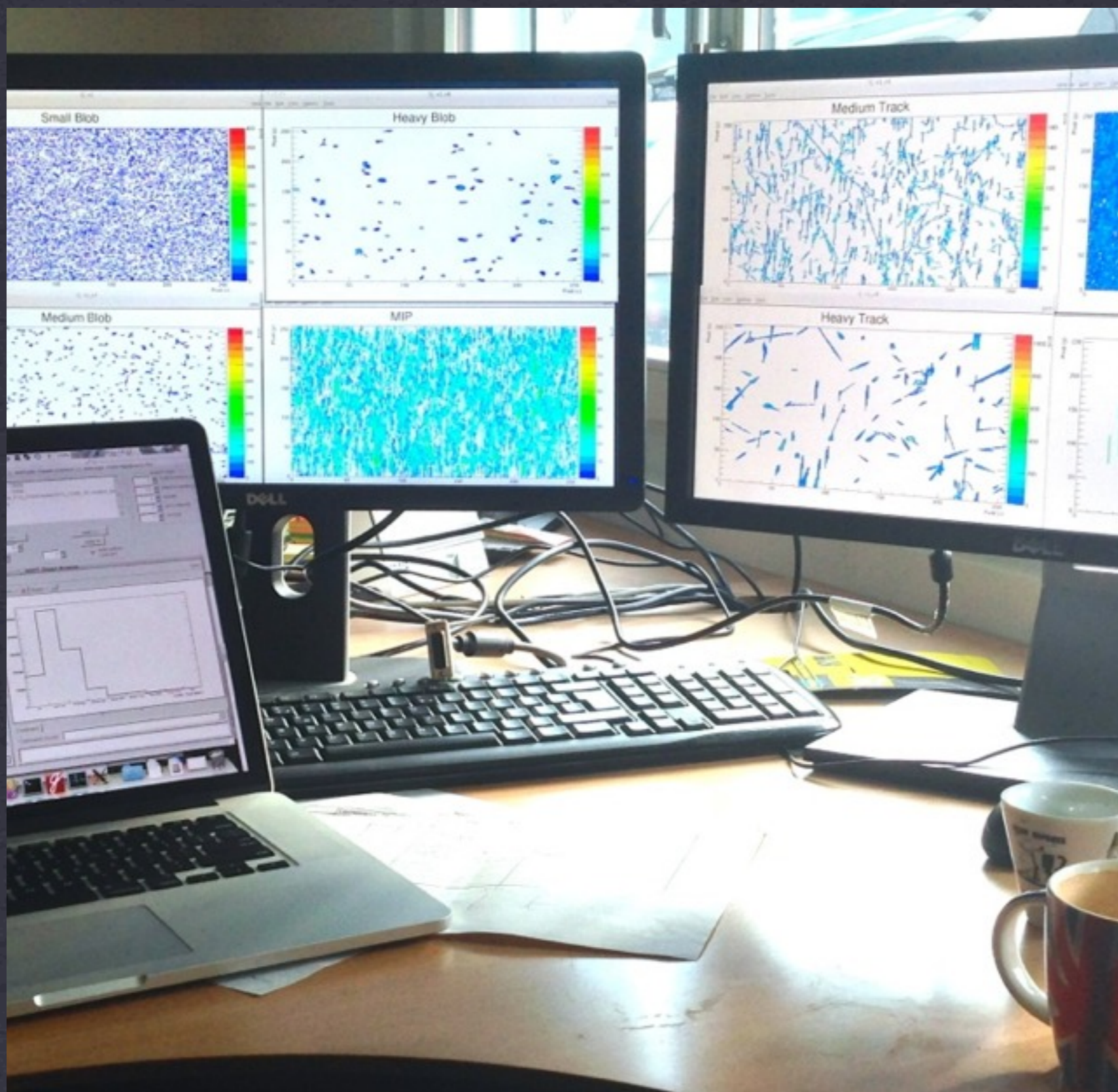
What Have We Done?

- ✱ We have taken the Timepix to experimental facilities
- ✱ We have simulated the detector with neutrons

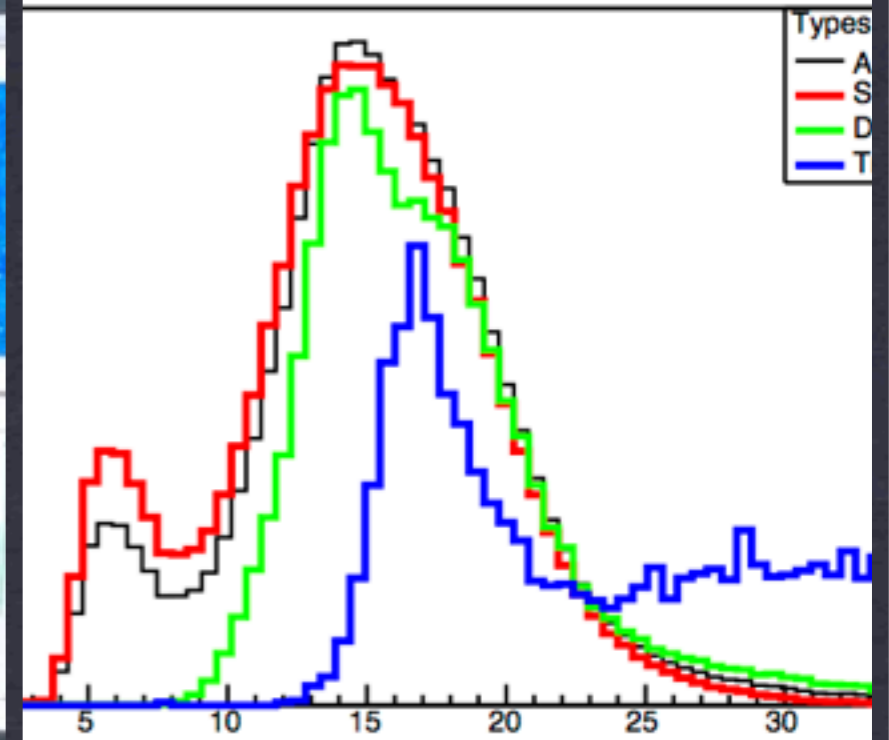


What Have We Done?

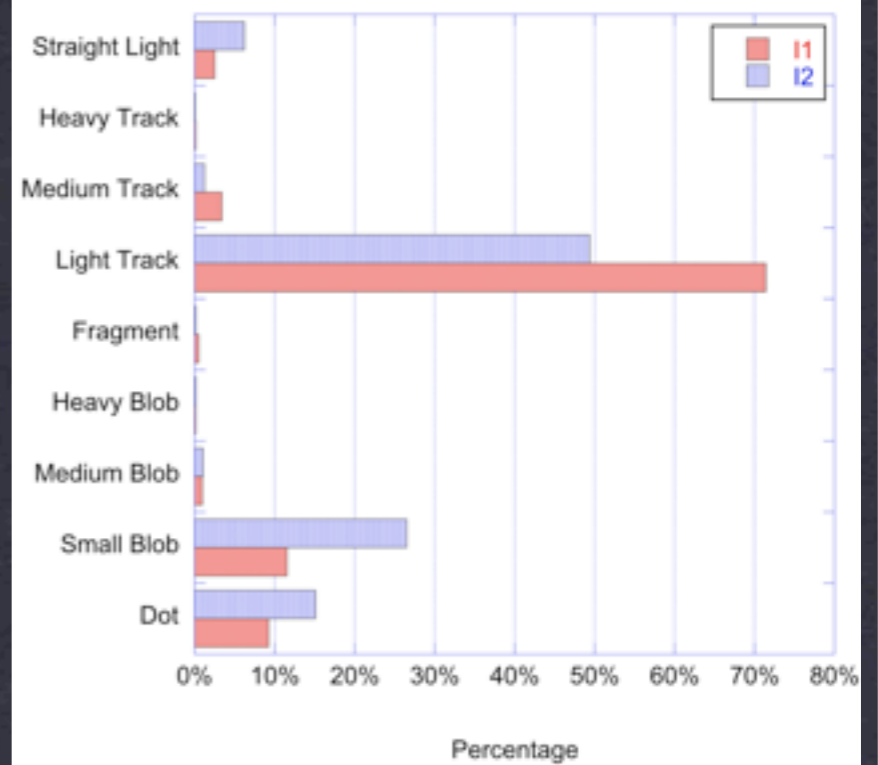
- ✱ We have taken the Timepix to experimental facilities
- ✱ We have simulated the detector with neutrons
- ✱ We have developed useful tools and algorithms to analyze our data



Americium Low Energy (13.9 keV) Peak



Cluster Type Distribution, Positions I1 and I2



Outreach

- ✱ Hot, Cold and Liquid Nitrogen - Sheffield, UK



Outreach

- ✱ Hot, Cold and Liquid Nitrogen - Sheffield, UK
- ✱ Poster for Andrea Vassilou (EU Commissioner, CERN)



Outreach

- ✱ Hot, Cold and Liquid Nitrogen - Sheffield, UK
- ✱ Poster for Andrea Vassilou (EU Commissioner, CERN)
- ✱ Working with high school students and Medipix in Wollongong, Australia
- ✱ Volunteered for the CERN Open Days
- ✱ Of course the upcoming POLIMI event

Dissemination

- * CERN Internal Report on Measurements carried out at CERF
- * Presentation on the same at IEEE NSS 2013
- * Paper in production on neutron simulations

The Future

- * More simulation work
- * Measurements in Legarno, Trento Proton Therapy center with Eurados WG9,
- * Secondment in Prague
- * Python courses at CERN

