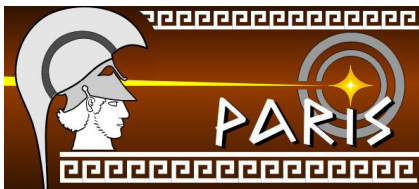# Review of Mechanical Options for PARIS

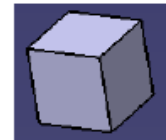J. Strachan, S Courtin, A Smith, E Gamelin

Detector Options

La Br3
2" x 2" cubic crystals
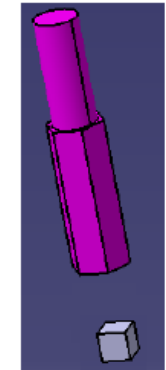Distance to target 150mm (Agata)
Minimum distance between crystals: 5mm
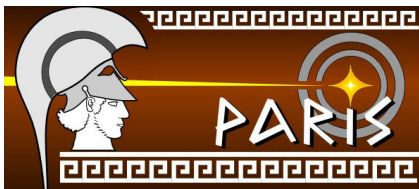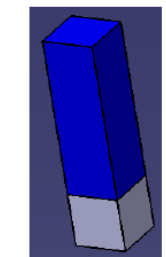Aluminium pipe: 60mm OD

BaF2
Chateau de Cristal type
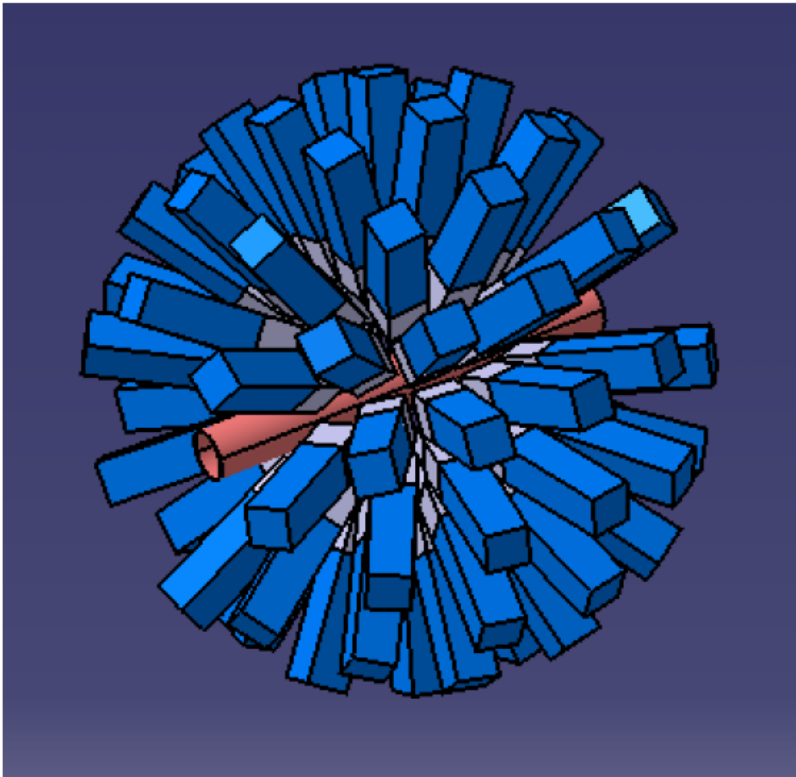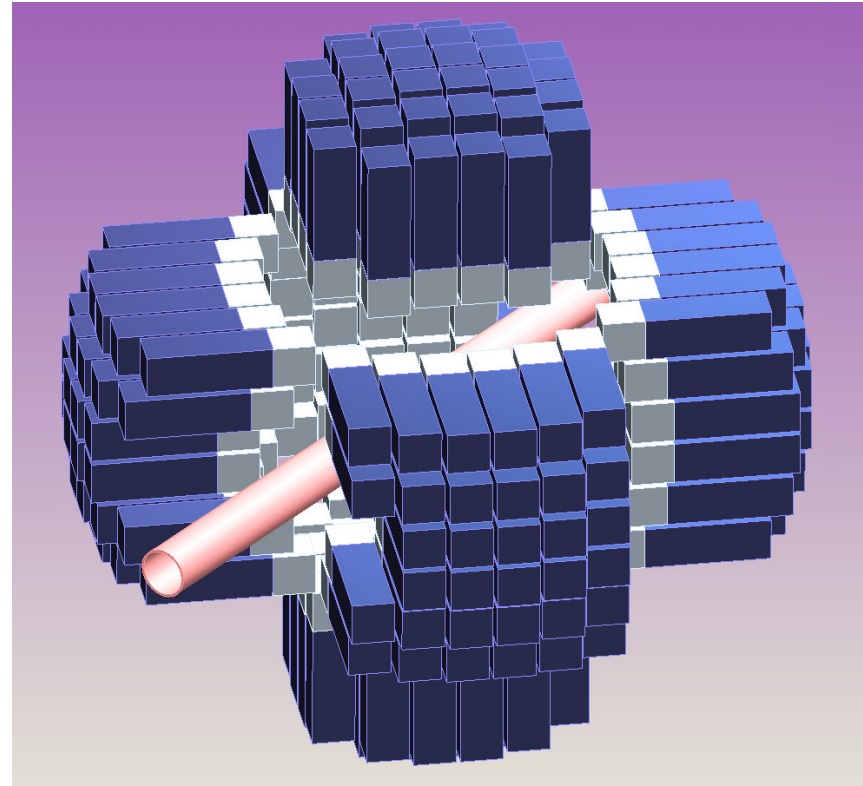Based on original Strasbourg drawings

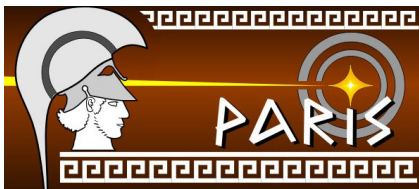CsI
Telescope type detector
2" x 2" basis / other shapes

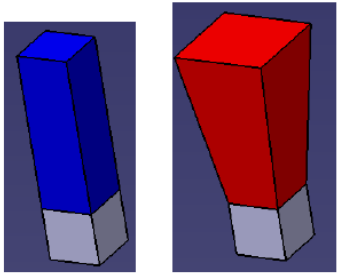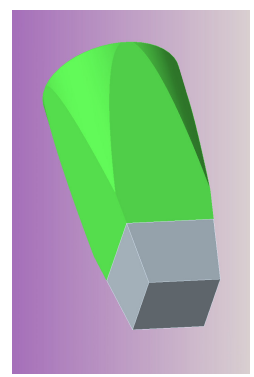# Array Options

spherical

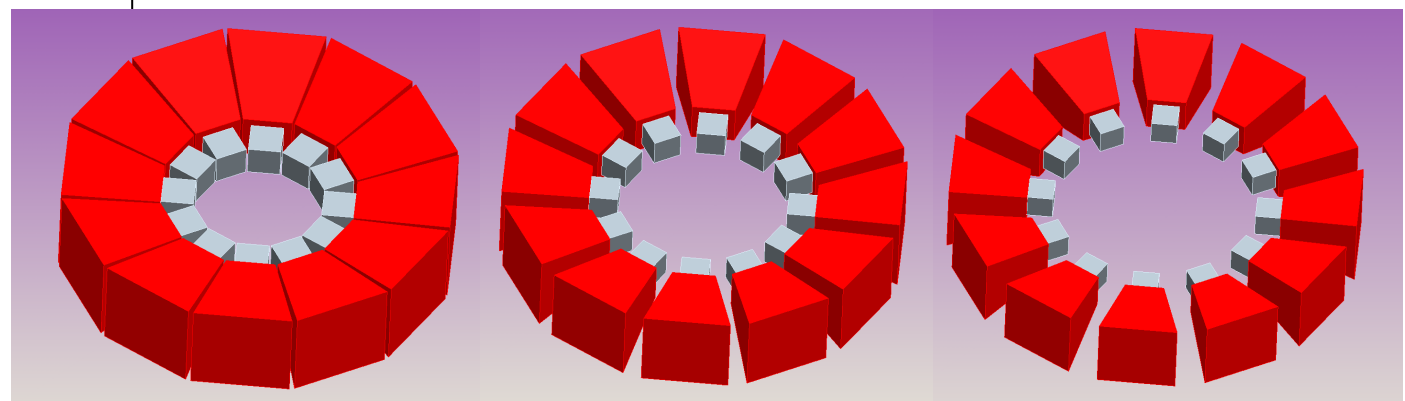cubic

Radial Array Options

Radial Detector options

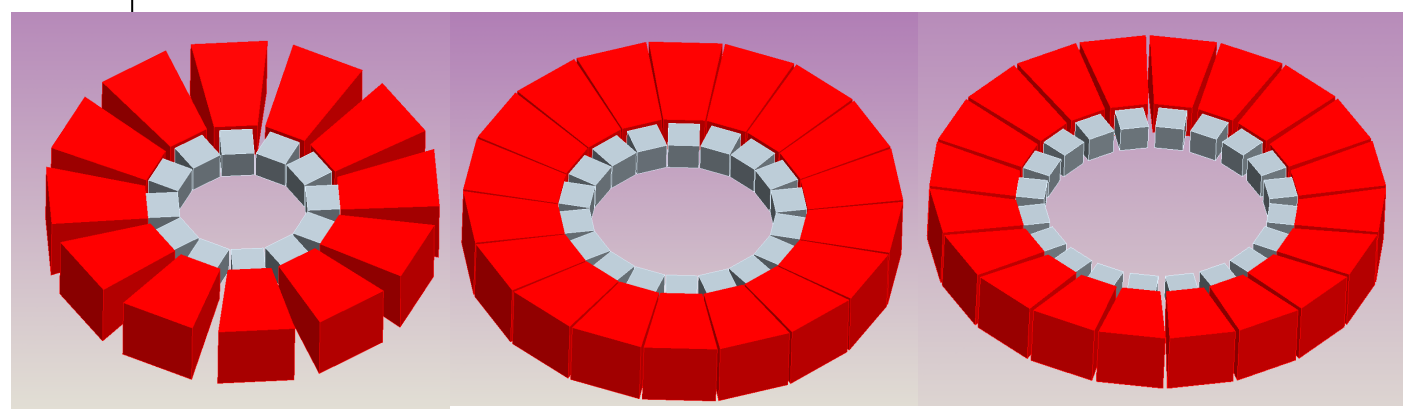Simulations led by Strasbourg
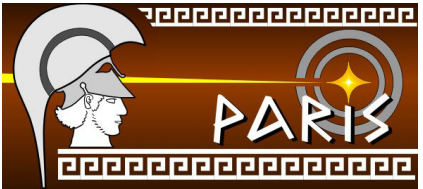
Simulations led by

India

R = 100mm

R = 150
12 detectors

R = 200

12 detectors

18 detectors
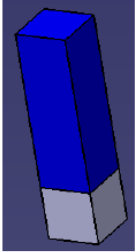
20 detectors

PARIS

Science & Technology
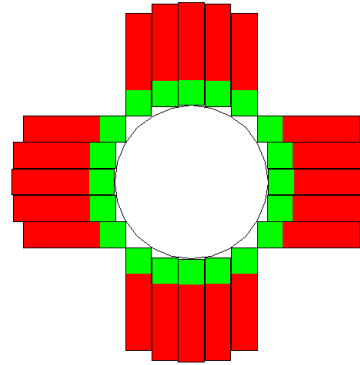Facilities Council
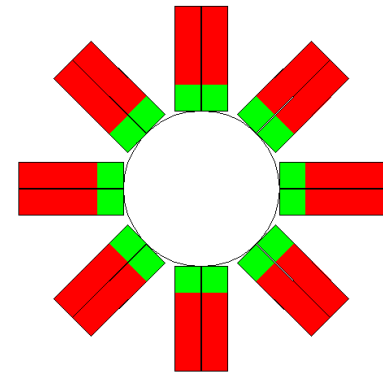
Cubic Array Options
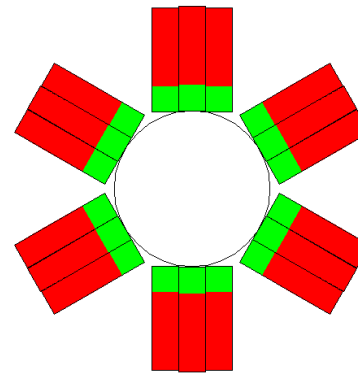
Cubic Detector

Simulations led by
York/Krakow
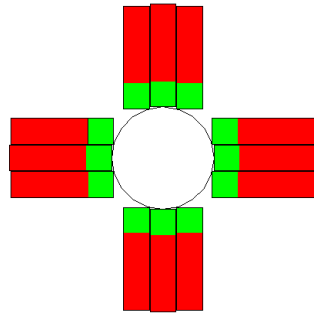
R = 100mm
12 detectors

R = 150
20 detectors
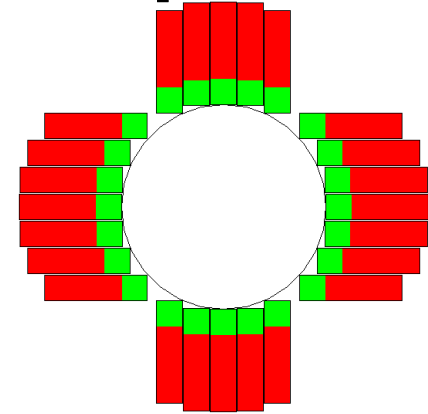
R = 200
24 detectors

Hybrid Arrays

Science & Technology
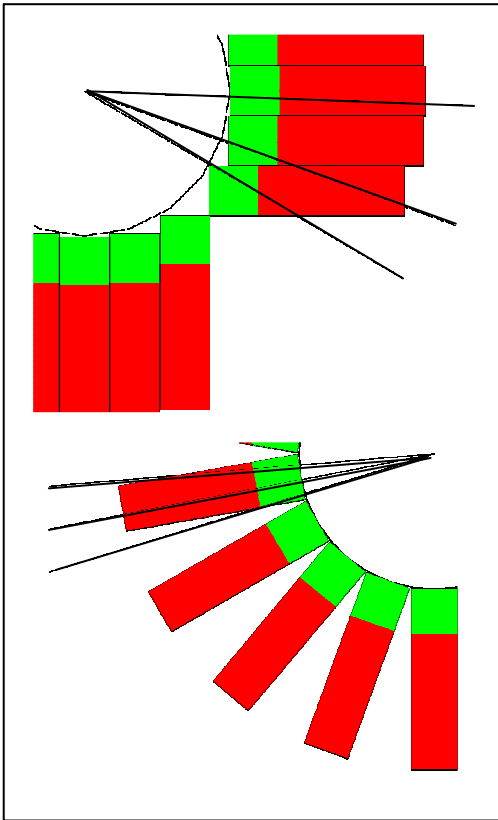Facilities Council
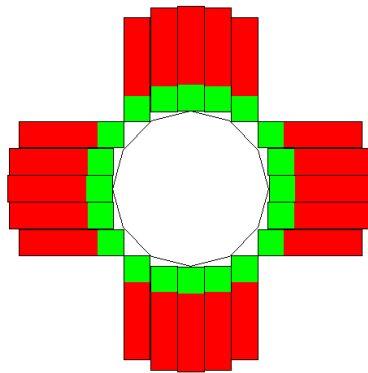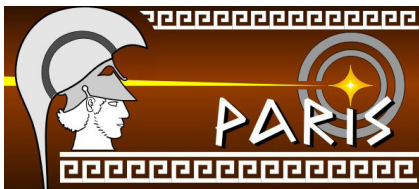
PARIS

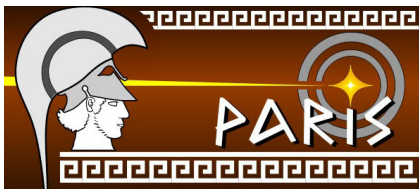# Radial and Cubic Array Simulation Parameters

How to create comparible arrays?

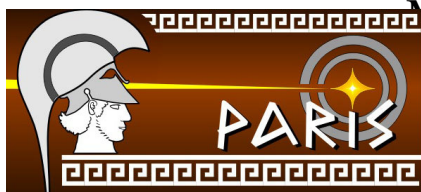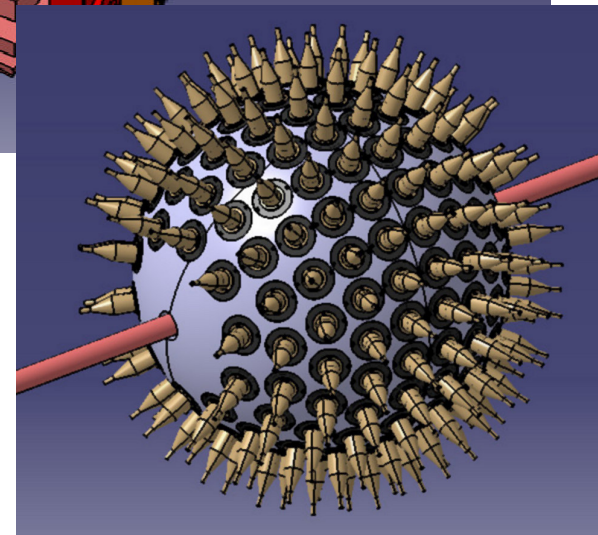Set standard Radii – R235mm   (from AGATA)
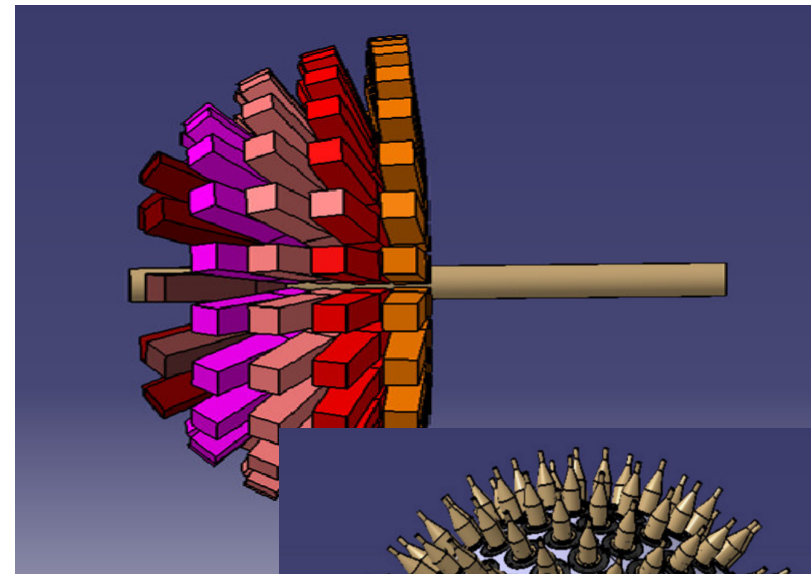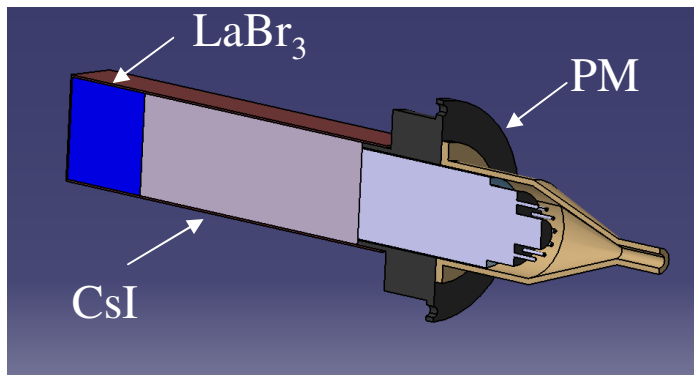Use same detector – telescope
Use same number of detectors - 200
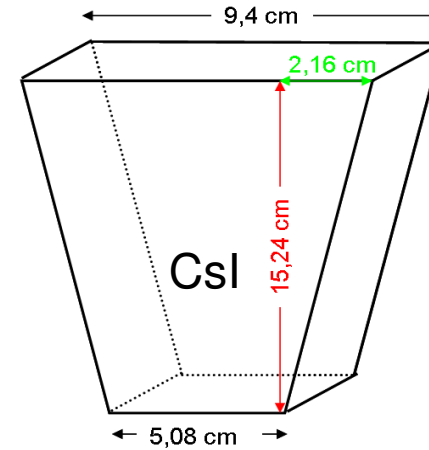
Radial Layouts for Simulation comparision

Basic structure :

- 200 telesopes $LaBr_3$-CsI
- Internal radius : 25 cm
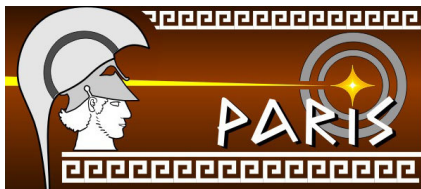- 10 rings

  - Design 222-226
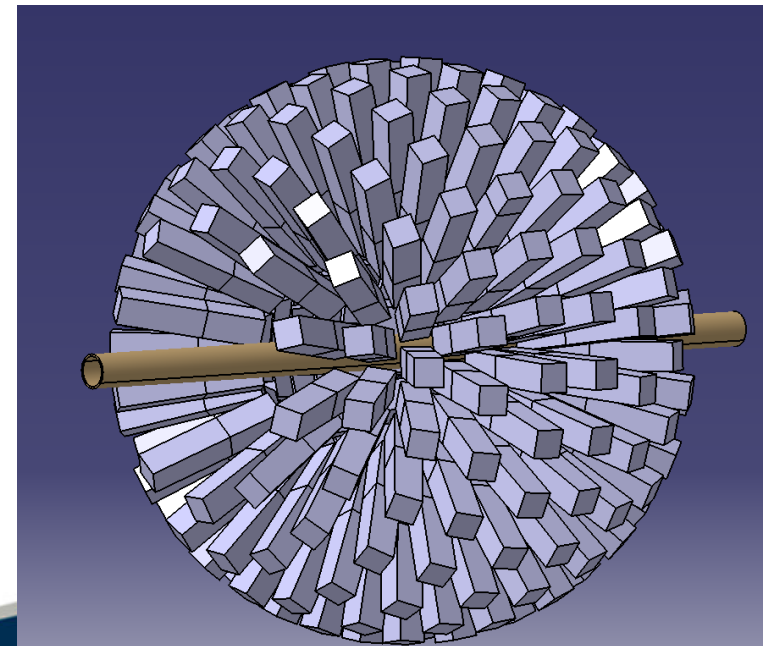

$LaBr_3$

PM

CsI

Module + PM

PARIS

Science & Technology
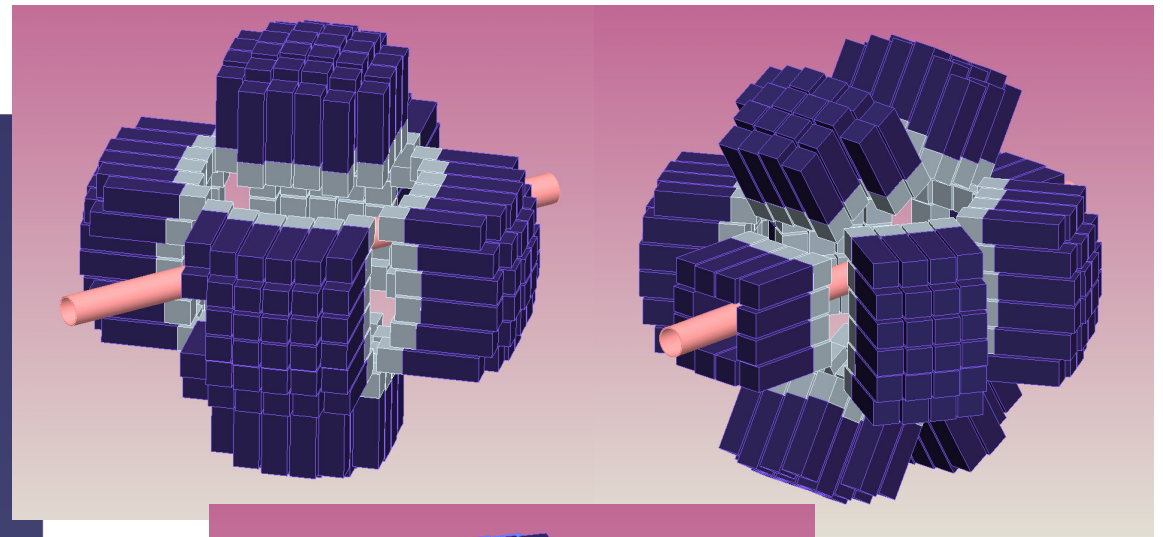Facilities Council

Radial Layouts for Simulation comparision
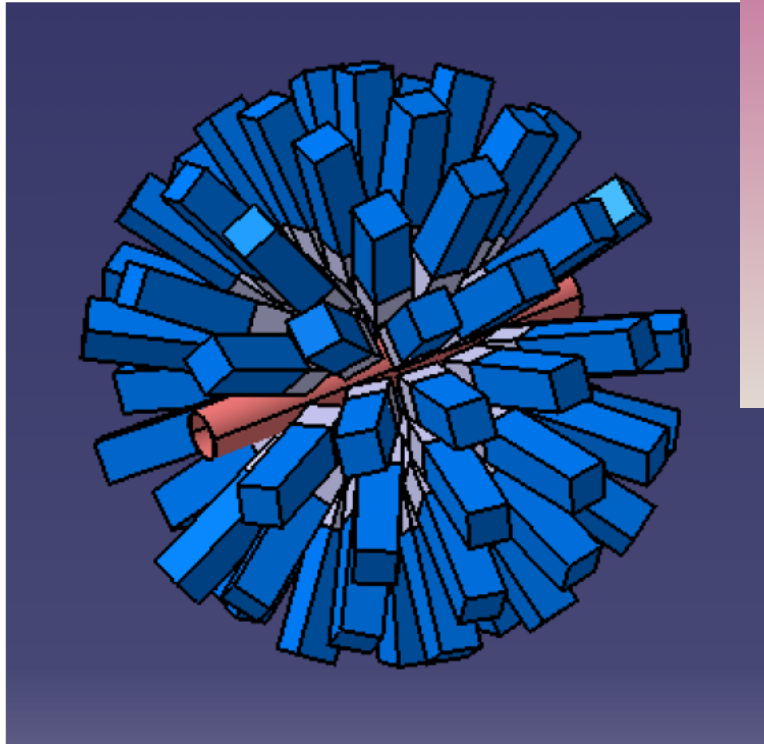
- Design 222-tapered

LaBr$_3$

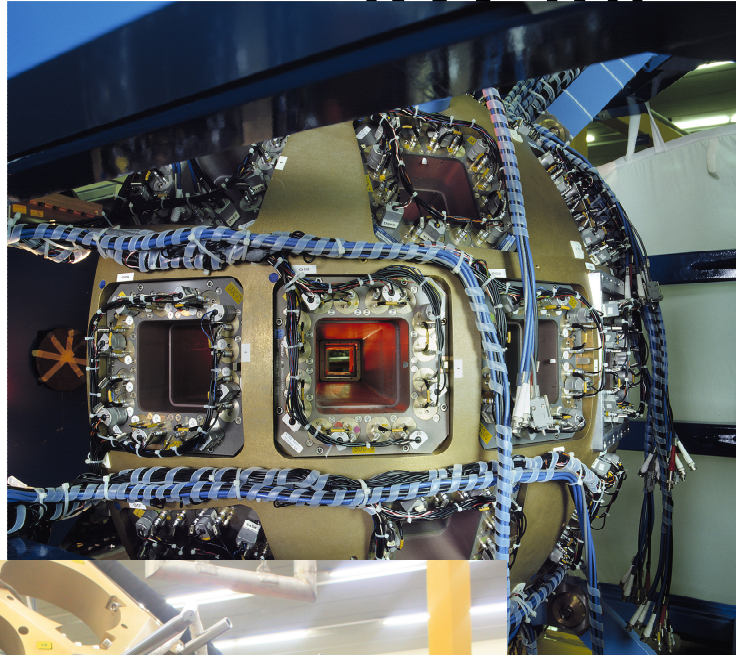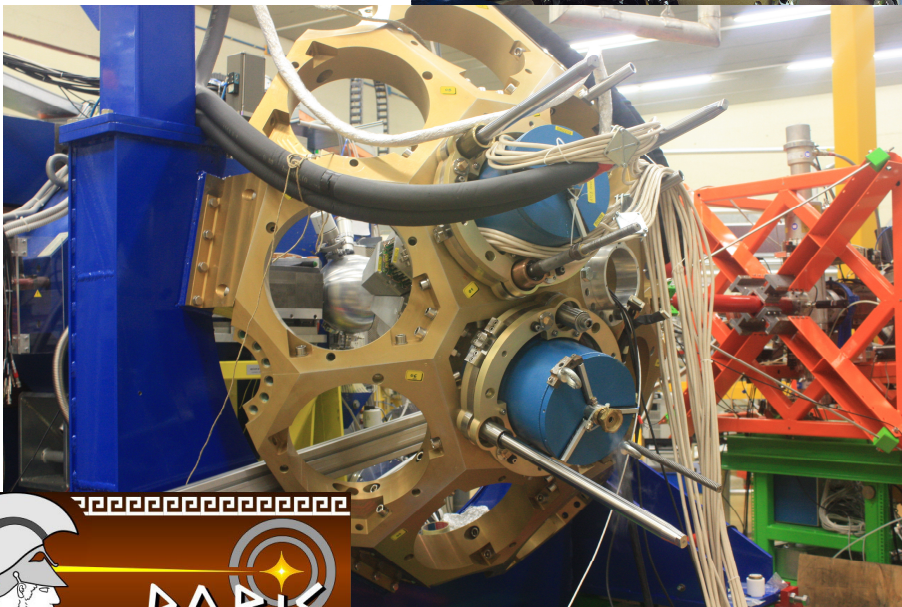- Design 224-226

LaBr$_3$ CsI
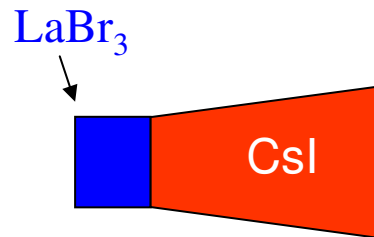
Layouts for Simulation comparision
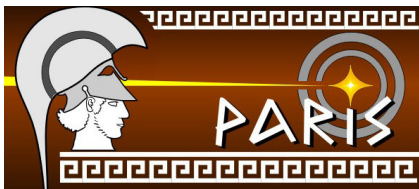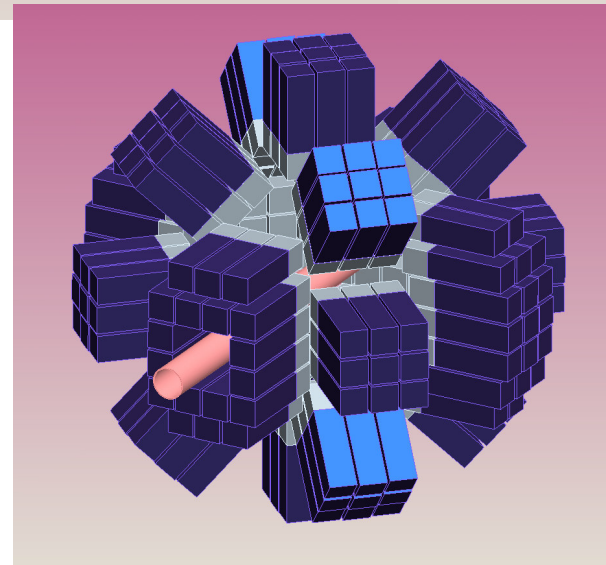
Mechanical Radial Type Arrays

hemisphere

Fully adjustable

Individual flanges

Science & Technology
Facilities Council
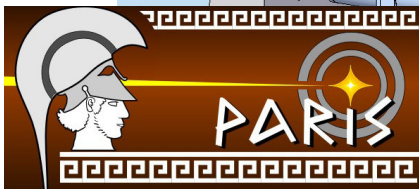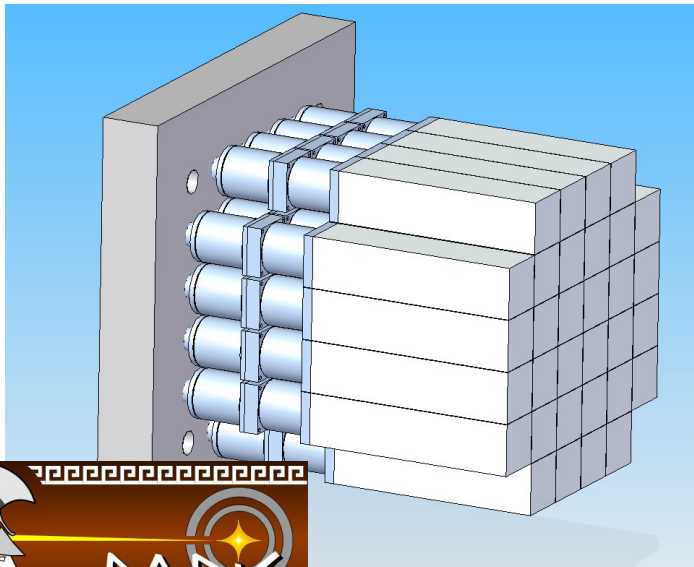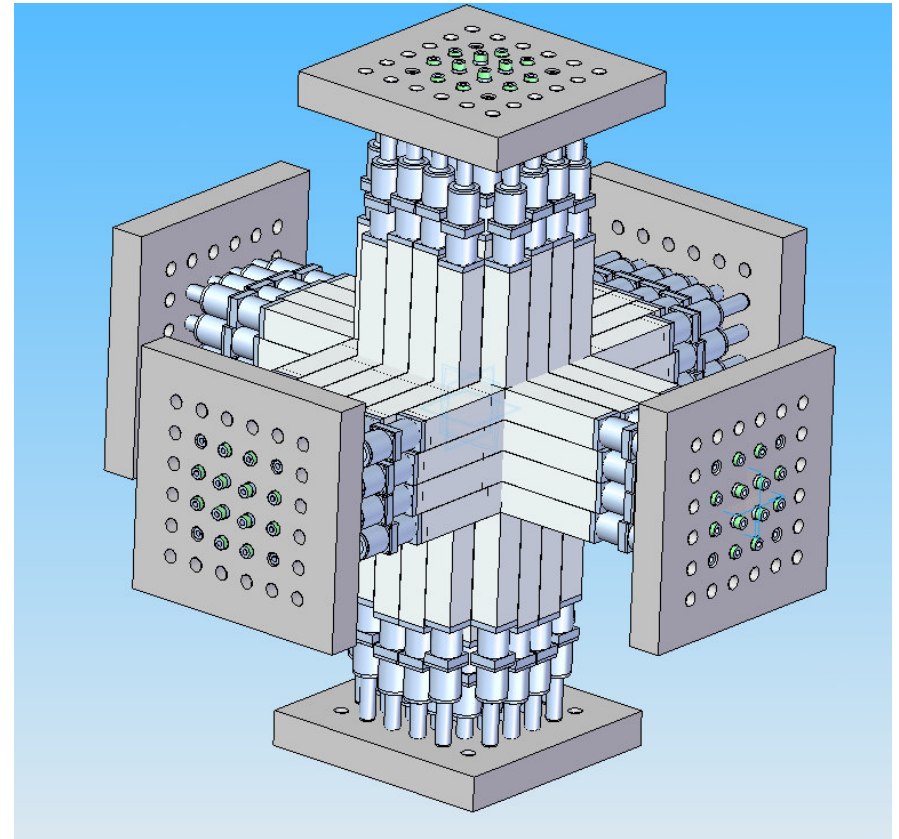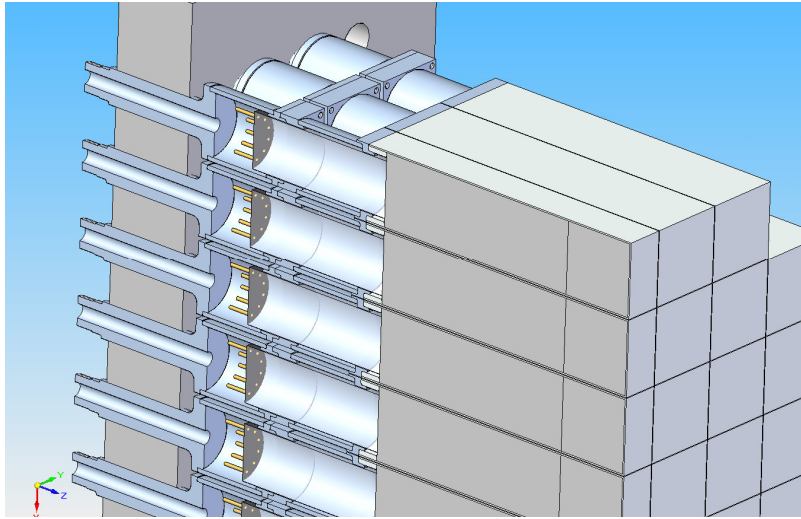
Mechanical Cubic Type Arrays

No Existing designs

Next Steps

Once Array Type has been decided on
We should create the Mechanical Specification.

Crystal type(s) and size
Detector type(s) and size(s) – PMTs or photoavalanche diodes
Radius and Range
Location
Secondary detectors?

Is it possible to have a common mounting
approach, and have a split csi crystal
in this case the telescopes could be
interchangable between array types.