

Density Parameters

Add more functions in 'density_formula.py'

1. Sphere:

- ρ_1 – density of sphere
- r_1 – radius of sphere

2. Cylinder:

- ρ_1 – density of cylinder
- r_1 – radius of cylinder
- Length (z_{dim}) – length of cylinder

Make sure $z_{dim} = 2 * r_1$

3. Core Shell:

- ρ_1 – inside density
- ρ_2 – outside density
- r_1 – radius of the outside of the cylinder
- r_2 – radius where the density changes inside the cylinder
- Length (z_{dim}) – length of cylinder

4. Gaussian cylinder:

- r_1 – The distance from the centre to the edge of the box.
- r_2 – standard deviation of the distribution
- Length (z_{dim}) – length of cylinder

5. Chopped Cone:

- r_1 – furthest from detector (-Z direction)
- r_2 – closest to detector (+Z direction)

r_1 must be greater than r_2 !!!!

(just rotate it by 180 degrees if you need to.)

- ρ_1 – density inside the chopped cone
- Length (z_{dim}) – length of the cone

6. Hexagonal Prism:

- r_1 – the the distance from the centre to the corner
- Length (z_{dim}) – length of the prism
- ρ_1 – density inside the prism

7. Rectangular Prism:

- r_1 - width
- r_2 – height

r_1 must be greater than r_2 !!!!

- Length (z_{dim}) – length
- ρ_1 – density inside the prism

8. String of bubbles:

- r_1 - radius of the bubbles
- r_2 – distance between the centres of two bubbles
- ρ_1 – density inside the bubble

9. Randomly chopped up cylinder:

- r_1 – radius of cylinder
- r_2 – width of the gap
- ρ_1 – density inside the chopped cone
- r_2 – number of gaps

10. Custom defined radius:

- How to enter data:
 - make a txt file.
 - Open it and put in ONE NUMBER PER LINE IN METERS!!
 - rename it to 'custom.csv'
- How the function works:
 - The program opens 'custom.csv' as a list.
 - Each element is given a value from - $z_{dim}/2$ to $z_{dim}/2$ at equal increments
 - The first element will be at - $z_{dim}/2$ (away from detector)
 - The last element will be at $z_{dim}/2$ (closest to detector)
 - A linear fit goes between two adjacent points in the list
- Length (z_{dim}) – length of shape.
- ρ_1 – density inside the shape

11. Double Slit

Consider the outside and inside edges of the slits.

- r_1 – distance between the outsides of the slits
- r_2 – distance between the insides of the two slits.
- Length (z_{dim}) – length of slits
- If you want to make the slits less wide, make a sequence with one frame, the variable y_{dim} , and enter the height of the slits into start sequence.

Analytic Parameters

Add more in 'analytic_formula.py'

1. Sphere:

- ρ_1 – density of sphere
- r_1 – radius of sphere

2. Cylinder:

- ρ_1 – density of cylinder
- r_1 – radius of cylinder

3. Core Shell:

- ρ_1 – inside density
- ρ_2 – outside density
- r_1 – radius of the outside of the cylinder
- r_2 – radius where the density changes inside the cylinder

4. Gaussian:

- r_1 – distance from the centre to the edge of the box.
- r_2 – standard deviation of the distribution