

## **MONTE CARLO METHOD**

The volume of an ellipsoid is analytically estimated using the Monte Carlo Simulation. A cuboid of dimensions  $l = 2.0$ ,  $b = 3.0$  and  $d = 4.0$  was considered as a reference volume. The volume of the ellipsoid with axes of same dimension is to be estimated. 10 trials with step number  $N = 100, 500, 1000, 2000, 5000, 10000, 15000, 20000, 30000, 40000$  were simulated using the Monte\_Carlo method and the volume was obtained. A comparison graph of analytical volume against actual volume of the ellipsoid was plotted. As the  $N$  increases, the simulated volume was found closure to the actual volume. A graph which plotted fractional error against  $N$  agreed that fractional error  $\rightarrow 0$  as  $N \rightarrow \infty$ .