

A brief description of the patran meshes to be used at the Summer School

1.

1400h.pat 1400nm pyramid, meshed at 38nm, 115,722 elements 21401 nodes.

Made for material constants

$A=0.76E-11$ (J/m)

$M_s=1.56E5$ A/m

$K_1=-1 E3$ J/m³

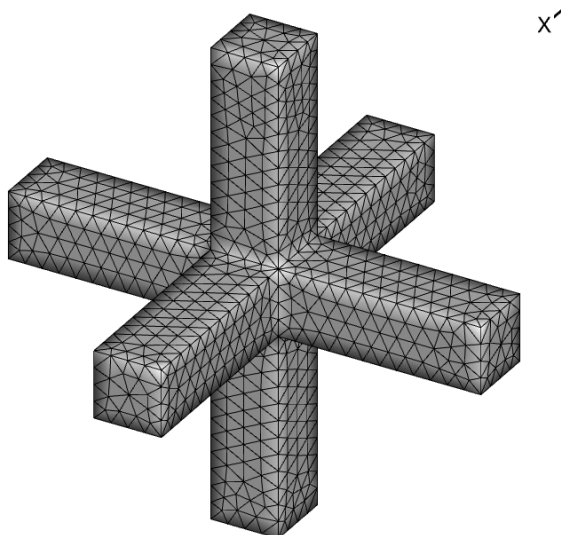
2.

Cross_Tauxe20nmb.pat

3d cross like structure 20nm consisting of 3 orthogonal pipes of size

20nm x 20nm x 140nm meshed at ~ 5nm

Use magnetite 20 C

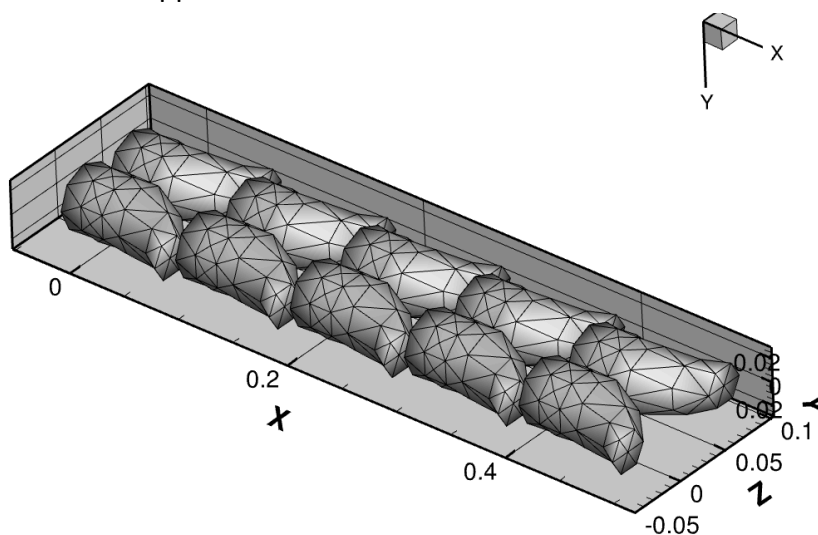


3.

Hook Magnetosome

2 rows of 5 x hook shapes each one approx. 100nm long, 30nm radius , 10nm separation

Meshed at 8nm. Approx. 35900 elements total



4.

1 x 110nm diameter sphere, meshed at 9nm sphere110nm_x1.pat

11982 tets

2 or 3 or 5 x 110nm diameter sphere in a row along x, meshed at 9nm separated by 5nm

sphere110nm_x2.pat

sphere110nm_x3.pat

sphere110nm_x5.pat

11982 tets in each sphere

5.

1 x 90nm diameter sphere meshed at 9nm sphere90nm_x1.pat

11982 tets

3 or 5 or 7 x 90nm diameter sphere in a row along x, meshed at 9nm separated by 0.01nm

sphere90nm_x1.pat

sphere90nm_x3.pat

sphere90nm_x5.pat

sphere90nm_x7.pat

6.

7 x Cubes of side length 0.0725 nm (ESVD to 90nm) with separations between cubes of separation, 0.1nm, 5nm, 20nm, 145nm and 300nm

brick725x7_s0p1.pat

brick725x7_s5.pat

brick725x7_s20.pat

brick725x7_s70.pat

brick725x7_s145.pat

brick725x7_s300.pat

6. 10x 90nm diameter spheres equally dispersed (2,10,20,50,90,150nm separation) in a ring in xy plane

Circle radius given by $2 \cdot \pi \cdot r = 10 \times (90\text{nm} + 2\text{nm}) = 0.14642255$ etc

sphere90nm_x10_2_circle.pat

sphere90nm_x10_10_circle.pat

sphere90nm_x10_20_circle.pat

sphere90nm_x10_50_circle.pat

sphere90nm_x10_90_circle.pat

sphere90nm_x10_2_circle.pat

