



**DEPARTMENT OF ELECTRONIC ENGINEERING
N.E.D. UNIVERSITY OF ENGINEERING
AND TECHNOLOGY**

**SOLID STATE DEVICE
BATCH 2017-18**

LAB SESSION # 1,2

NAME: MUNTAHA SHAMS

ROLL # EL-17062

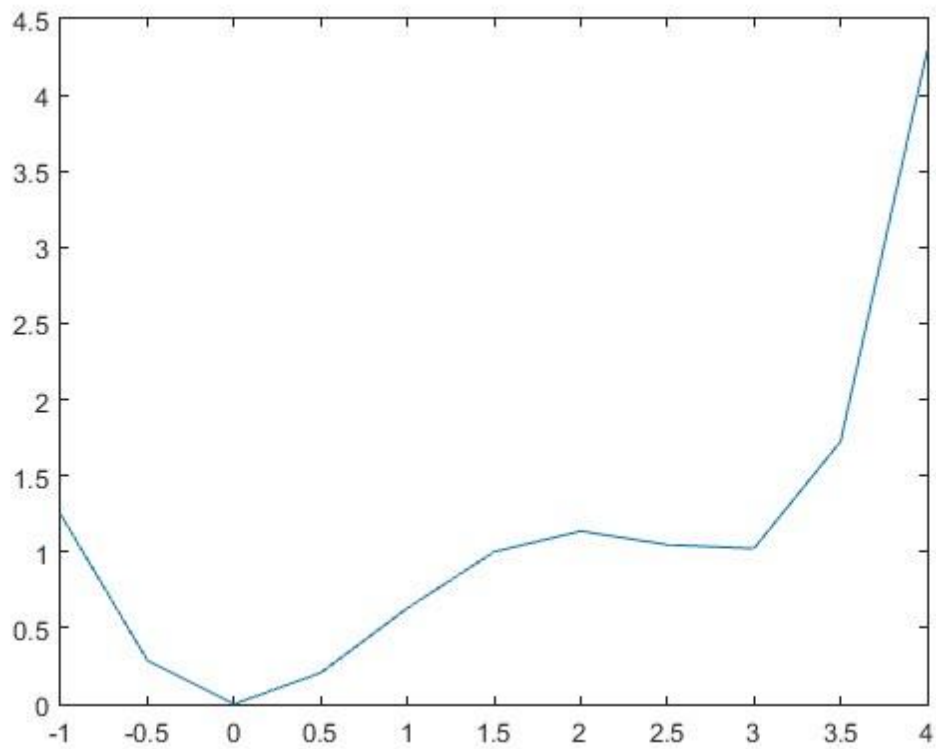
SECTION: C

Cloud id: shams4002093@cloud.neduet.edu.pk

LAB SESSION #1

Task 1

```
x = -1:0.5:4; y = 0.025*x.^5-0.0625*x.^4-  
0.333*x.^3+x.^2; plot(x,y)
```



Task 2

```
m = input('Enter Matrix');
```

```
m = [1 2 3;4 5 3;5 7 8]; % Example  
if(m<5==0) else(m>5==1) end  
ans =
```

```
0     0     0  
0     0     0  
0     1     2
```

Task 3

v = input('Enter Vector');

```
v = [1,2,3,4,5,6,7]; % Example
display('Descending');
sort(v,'descend')
display('Ascending');
sort(v,'ascend')
```

Descending ans =

7 6 5 4 3 2 1

Ascending ans =

1 2 3 4 5 6 7

Task 4

n= input('enter no of atoms') a= input('enter lattice constant')

```
n = 100 % Example
a= 120 % Example
d= n/a.^3
display(d)
```

n =

100

a =

120

d =

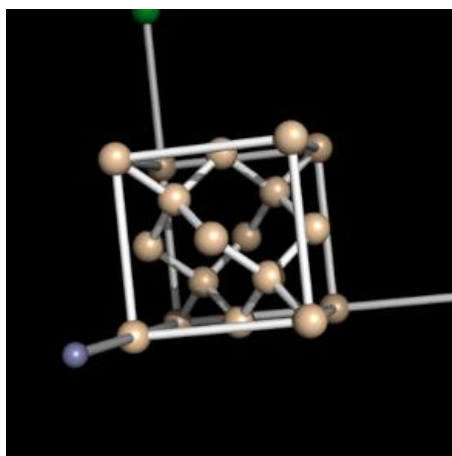
5.7870e-05

d =

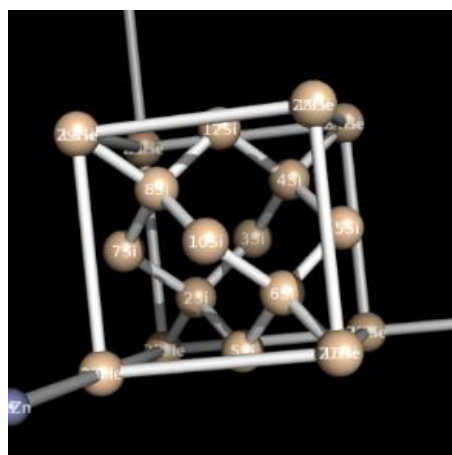
5.7870e-05

LAB SESSION #2

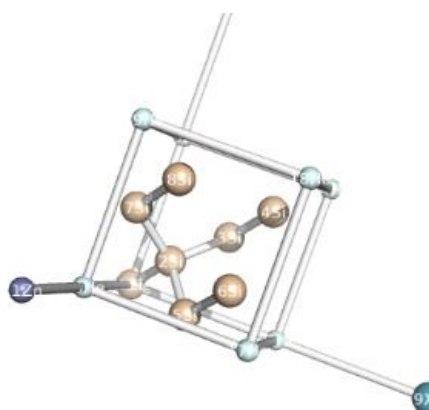
Task # 01:



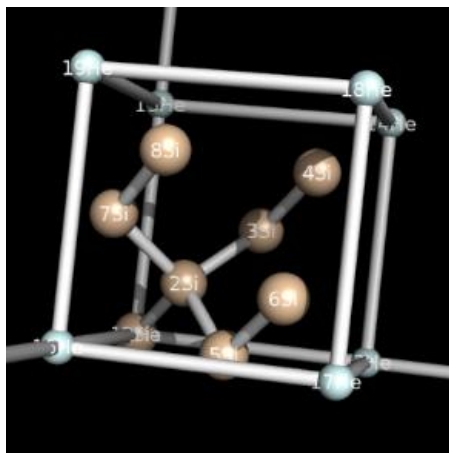
Task # 02:



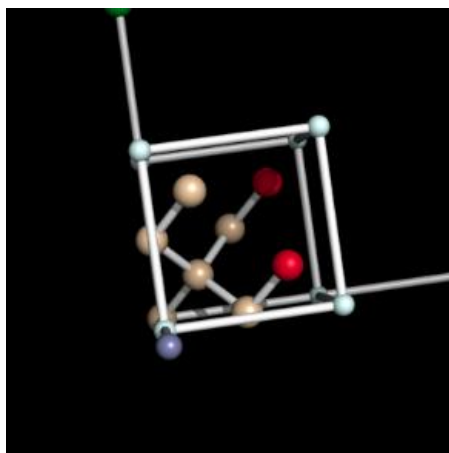
Task # 03:



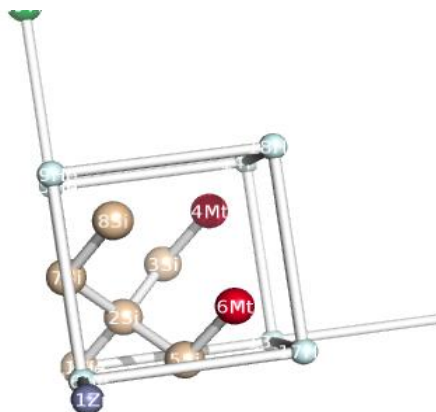
Task # 04:



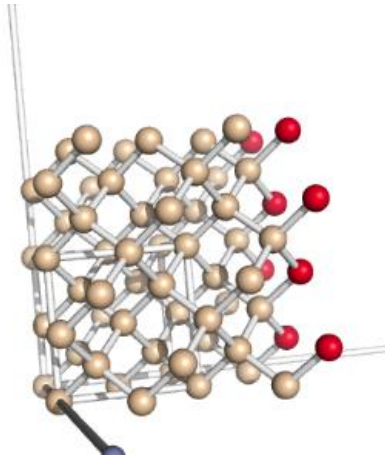
Task # 05:



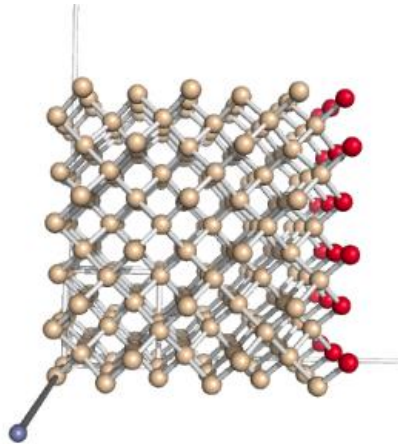
Task # 06:



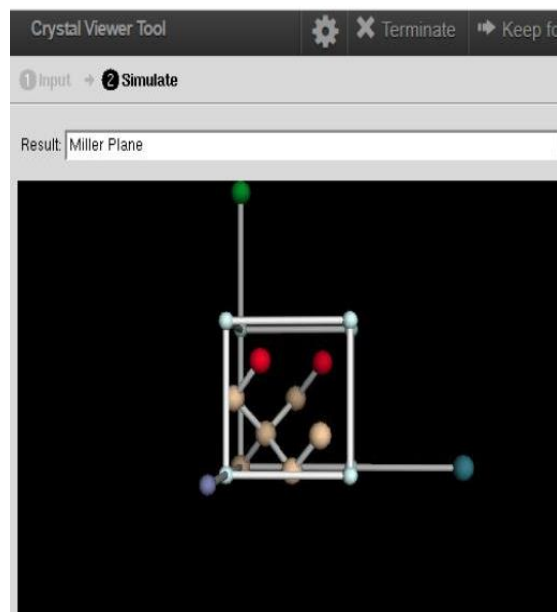
Task # 07:



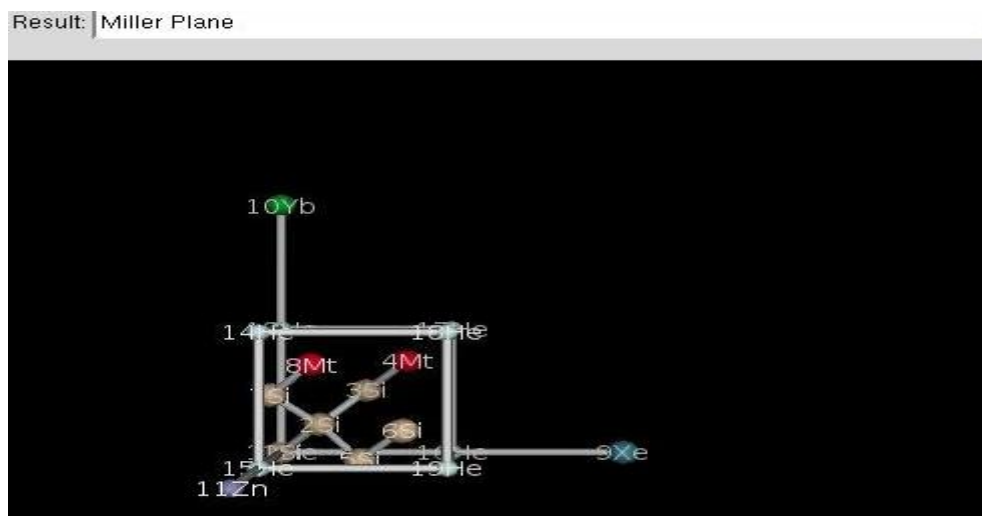
Task # 08:



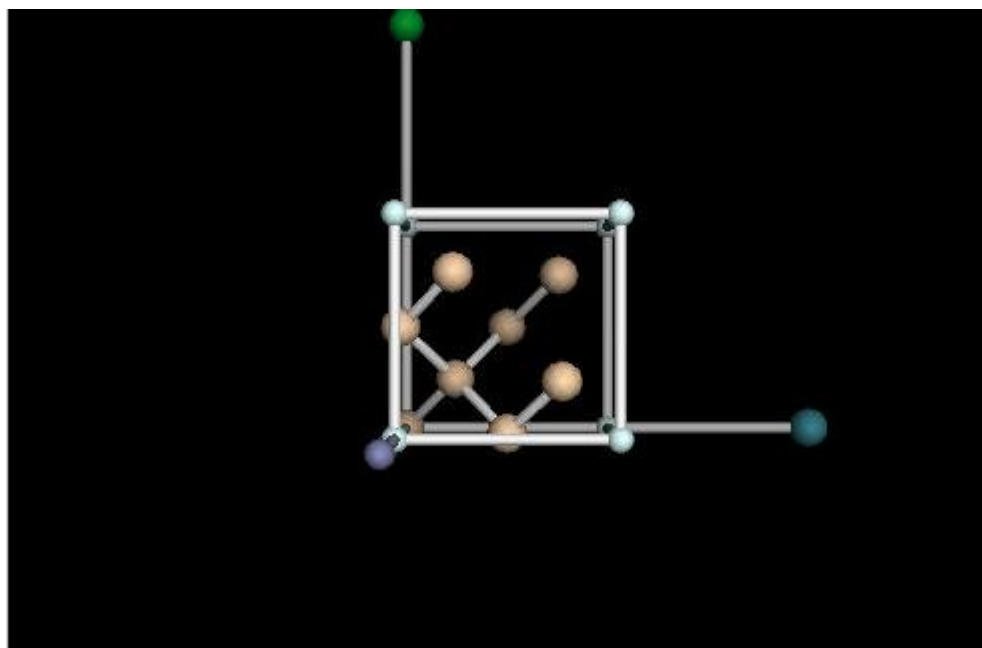
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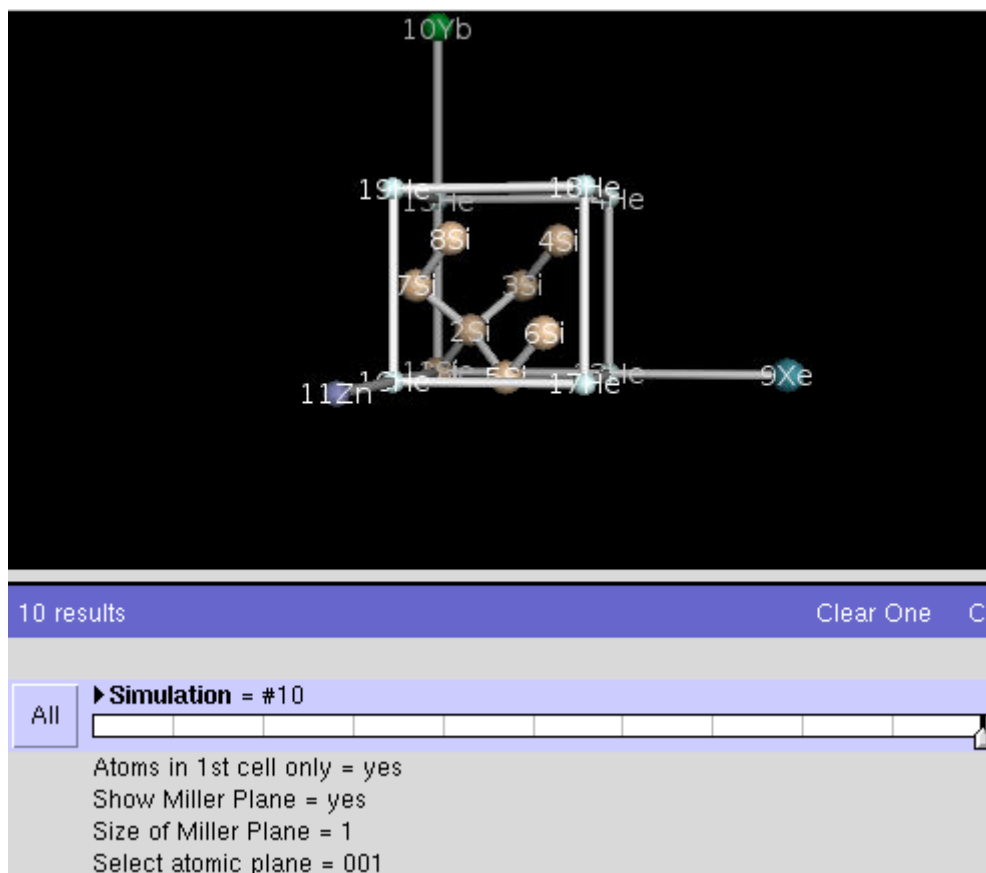
Task # 10:



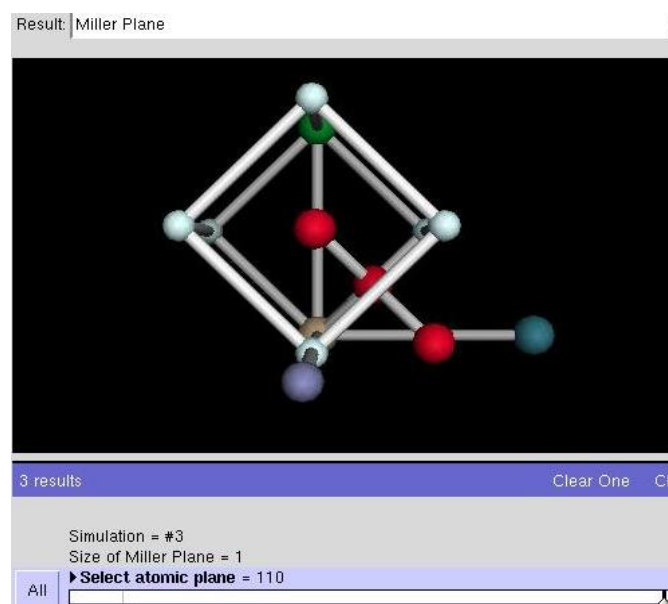
Task # 11:



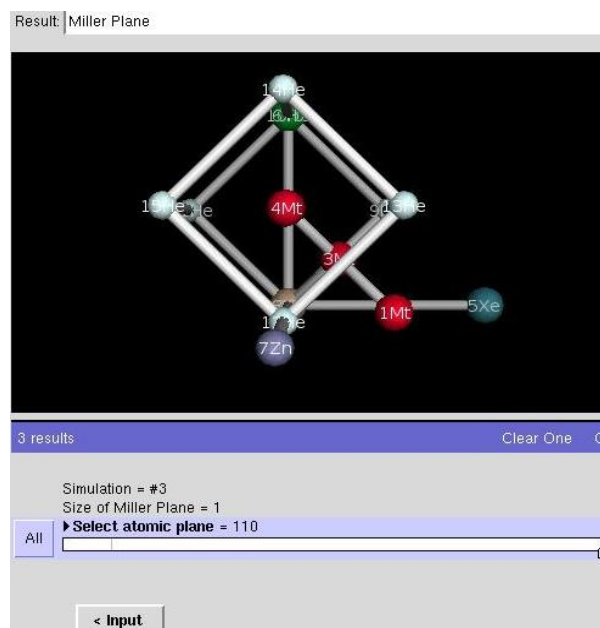
Task # 12:



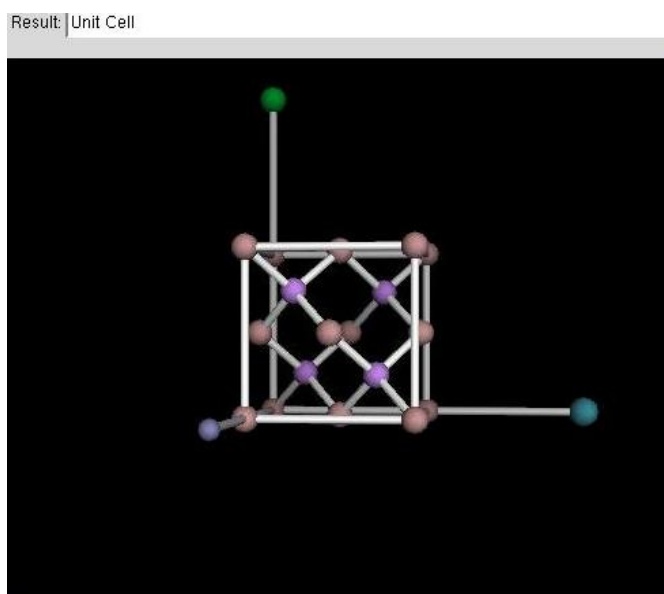
Task # 13:



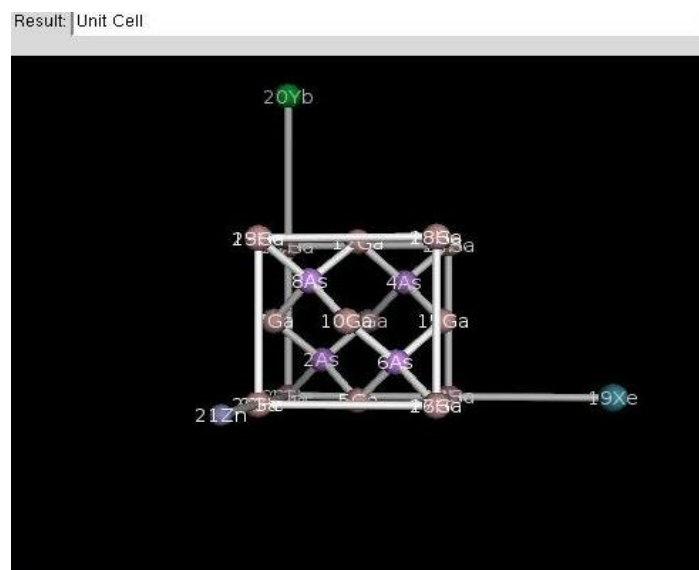
Task # 14:



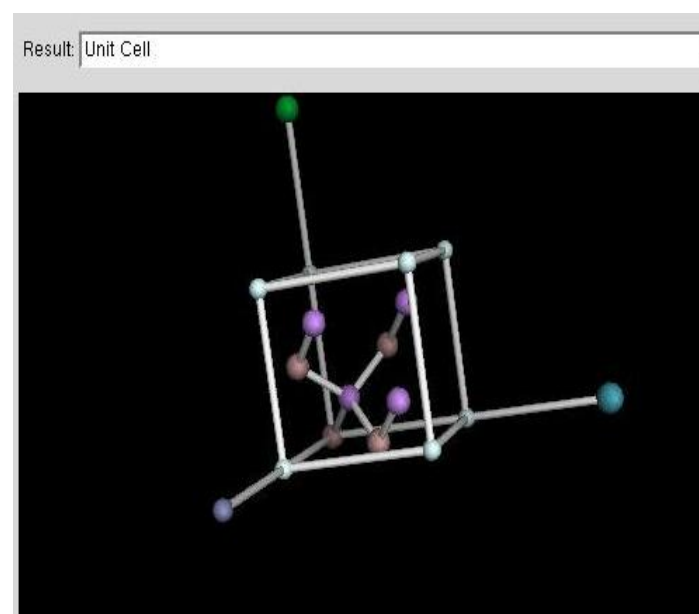
Task # 15:



Task # 16:

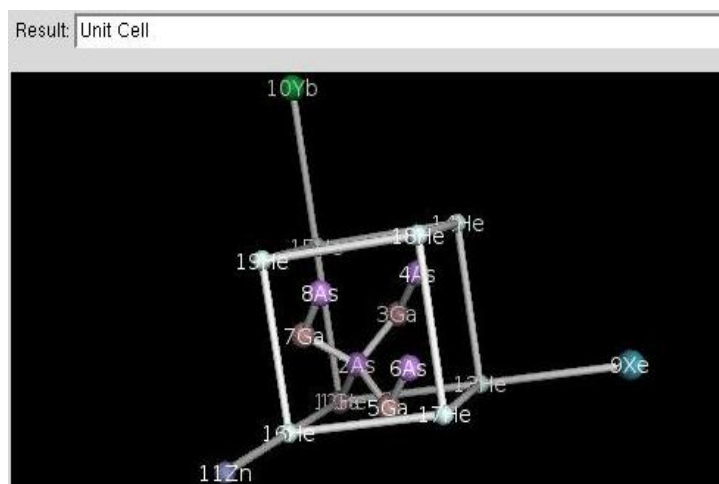


Task # 17:

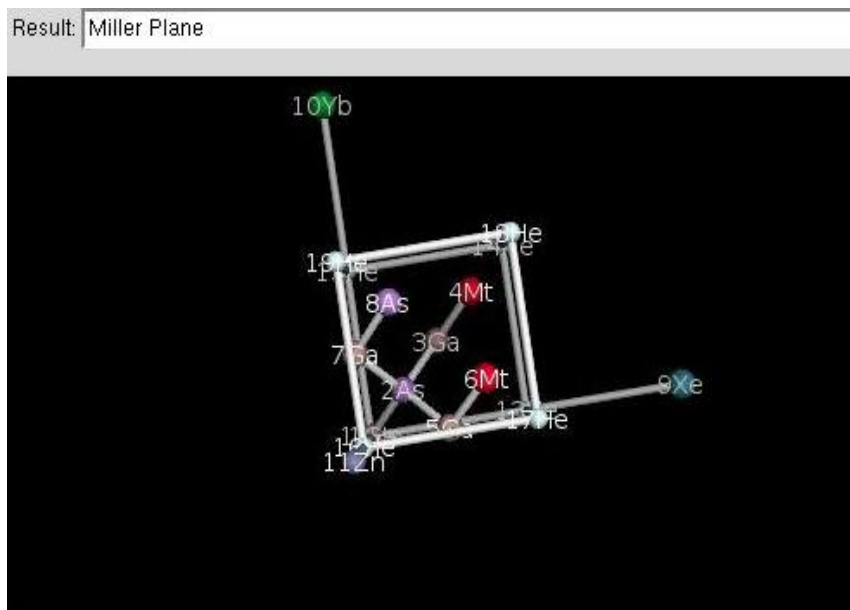


Task # 18:

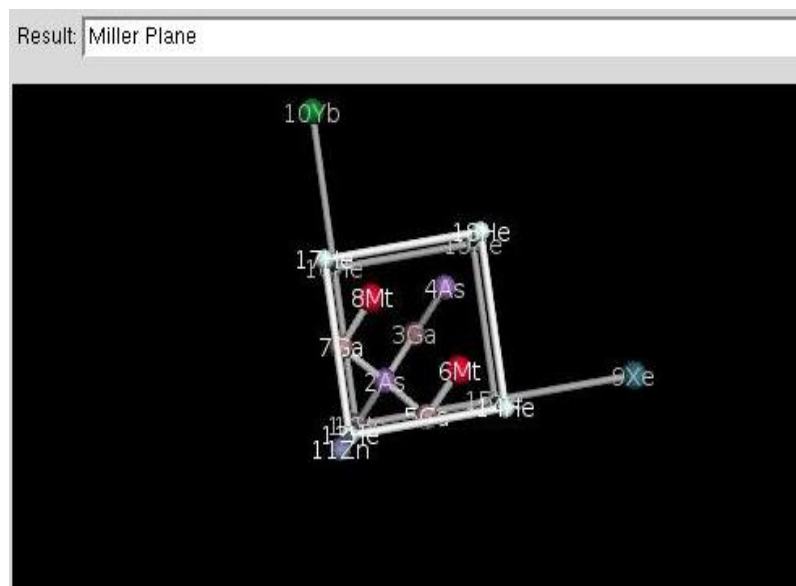
=



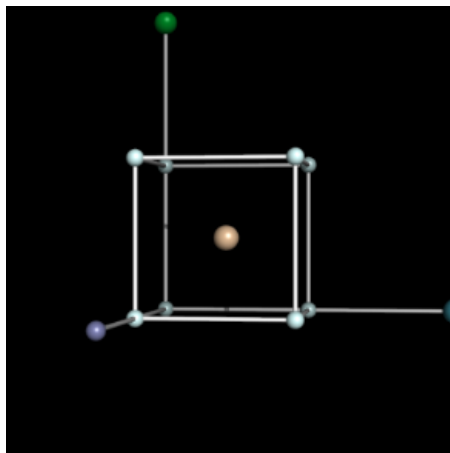
Task # 19:



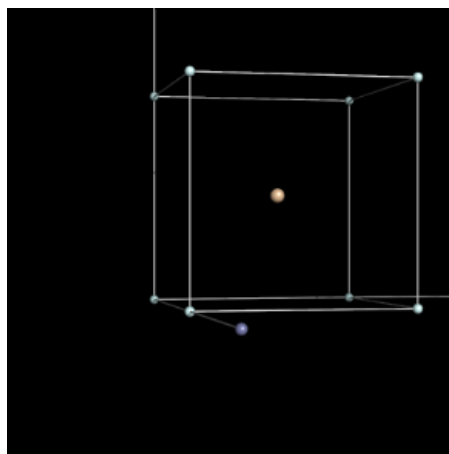
Task # 20:



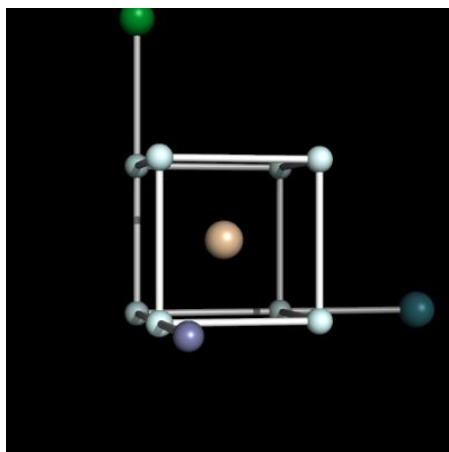
Task # 21:



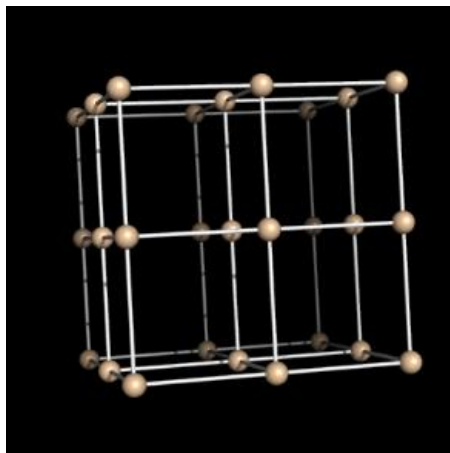
Task # 22:



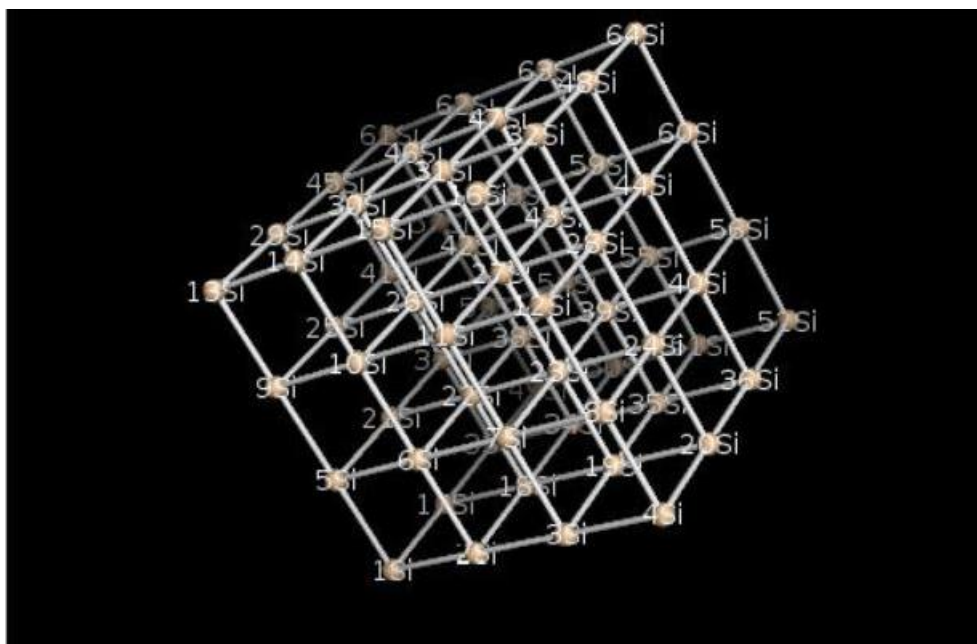
Task # 23:



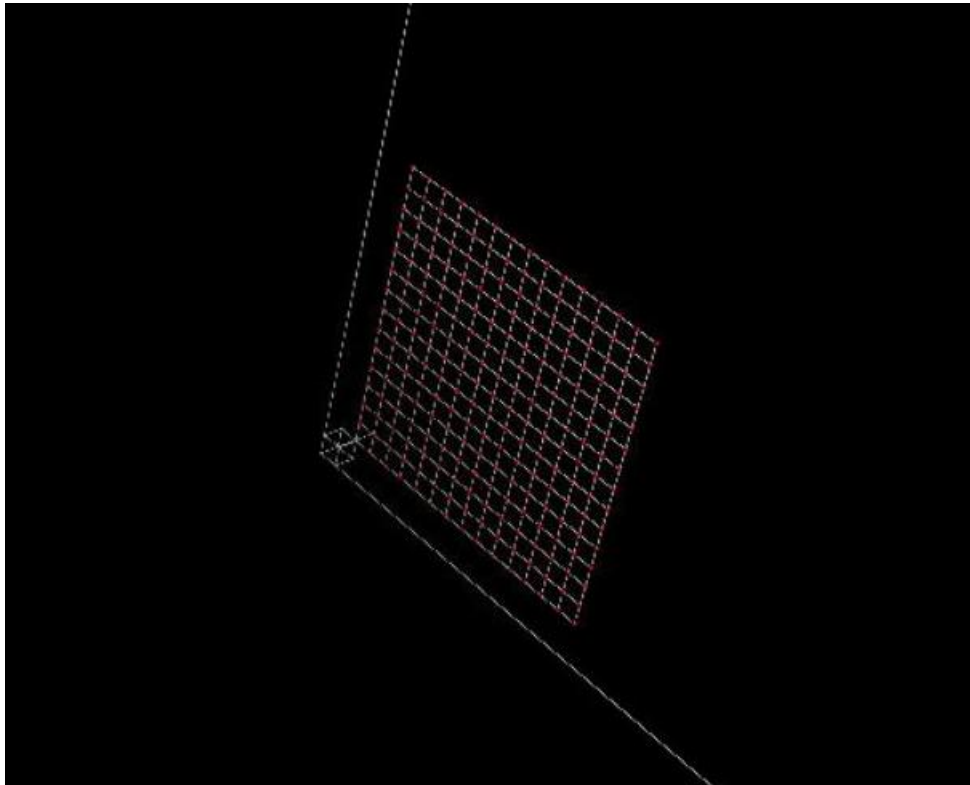
Task # 24:



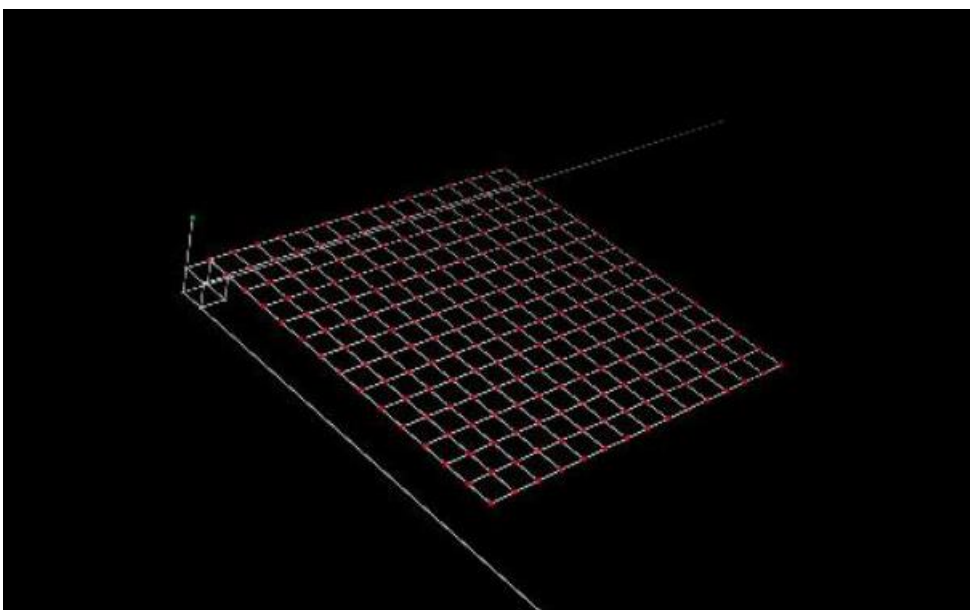
Task # 25:



Task # 26:



Task # 27:

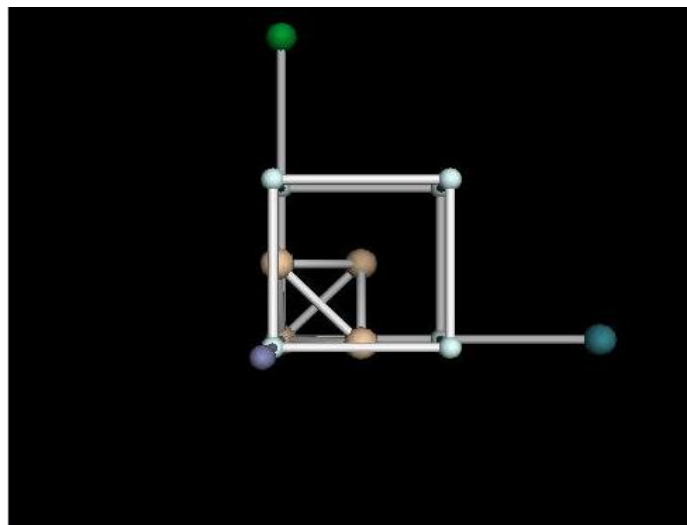


Task # 28:

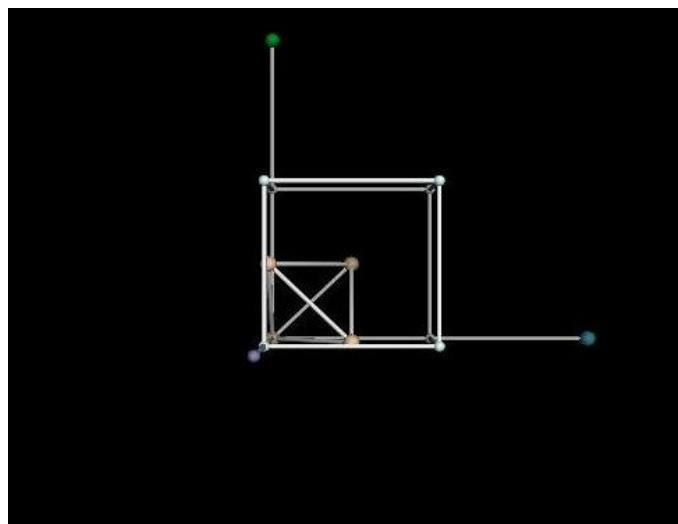
```
1 Input → 2 Simulate

[Nemo] finished reading input deck after 0.00124192 s.
[Nemo/PetscMatrixDouble] Initializing DOUBLE SLEPc...
[Nemo/PetscMatrixComplex] Initializing COMPLEX SLEPc...
[Nemo] NEW database parsed okay
[Nemo] finished reading material database after 0.021637 s.
Running NEMO on 1 nodes.
=====
[Nemo] initializing Material regions...
=====
[Material] creating Si...
Lattice:a_lattice
crystal_structure
name
regions
tag
[Crystal] initializing...
[Nemo] Material regions were initialized in 0.000436068 seconds.
[SimpleShapes] creating shapes...
[SimpleShapes] shape creation is done.
[SimpleShapes] creating shapes...
[SimpleShapes] shape creation is done.
[Nemo] Geometry was initialized in 0.000135899 seconds.
=====
[Nemo] initializing Domains...
=====
[Domain] my_domain initializing...
[PseudomorphicDomain] building conventional cell...
[Crystal] calculating conventional cell...
nemo: tensor.cpp:689: Tensor2Gen inv(const Tensor2Gen &): Assertion `std
```

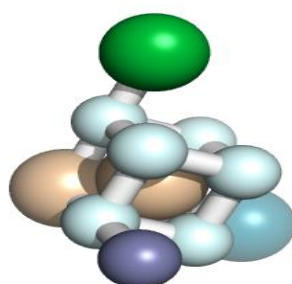
Task # 29:



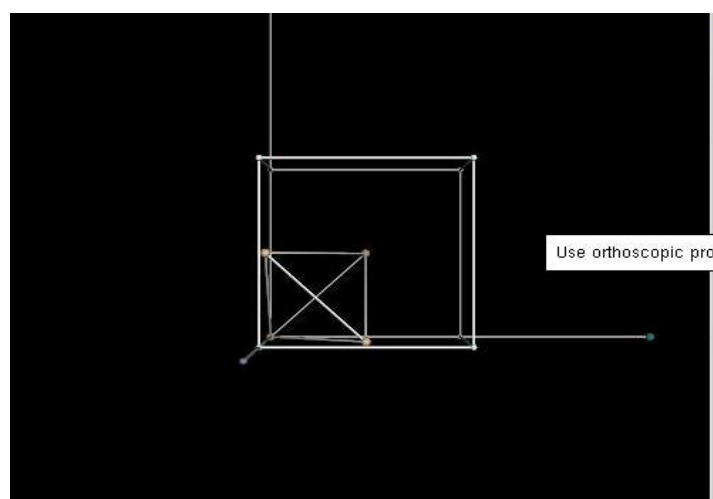
Task # 30:



Task # 31:

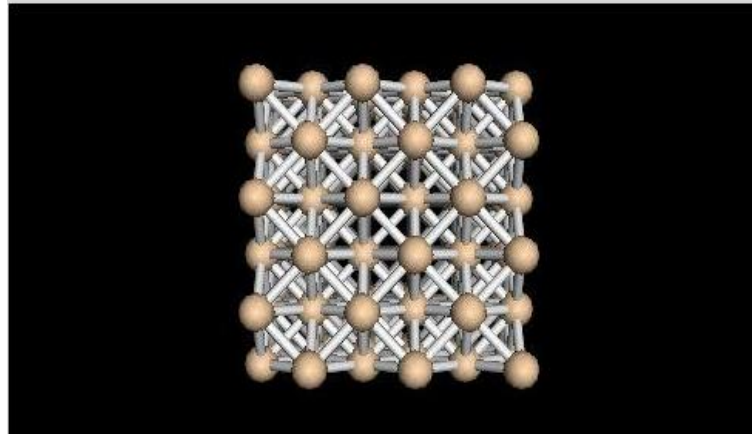


Task # 32:

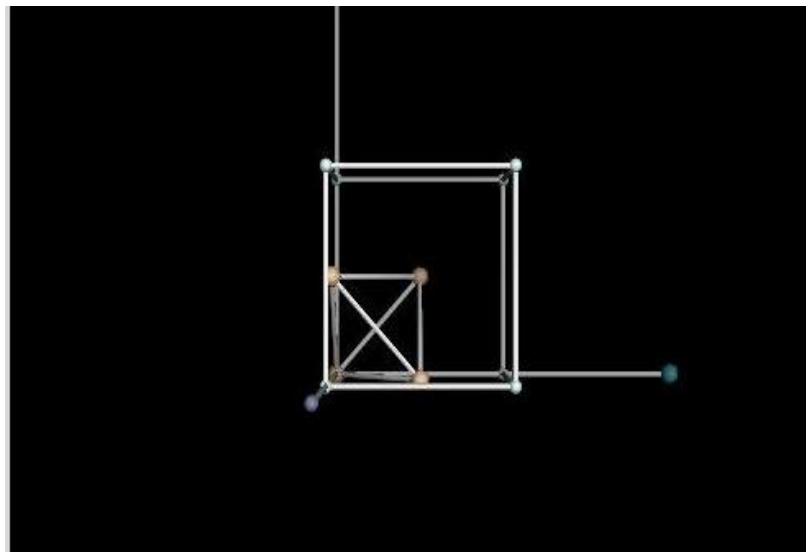


Task # 33:

Result: Large Lattice Grid

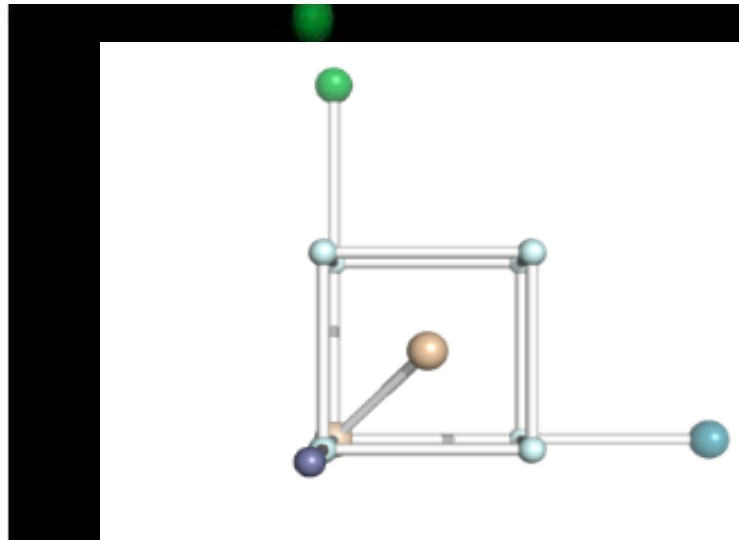


Task # 34:



Task # 35:

Task # 36:



Task # 37:

