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Course:B.Sc(H)Physics Sem 5

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Source Code:

clc

clear

clf

for i=1:3

m(i)=input("Enter mass of particle"+string(i)+":")

end

d=input("Enter matrix of coordinates of particles:")

disp(m)

disp(d)

Ixx=0;Iyy=0;Izz=0;Ixz=0;Ixy=0;Iyx=0;Izy=0;Izx=0;Iyz=0

for i=1:3

Ixx =Ixx+((d(i,2)^2+d(i,3)^2)\*m(i))

Iyy= Iyy+((d(i,1)^2+d(i,3)^2)\*m(i))

Izz=Izz+((d(i,1)^2+d(i,2)^2)\*m(i))

Ixy=Ixy+(-m(i)\*d(i,1)\*d(i,2))

Ixz=Ixz+(-m(i)\*d(i,1)\*d(i,3))

Iyx=Iyx+(-m(i)\*d(i,1)\*d(i,2))

Iyz=Iyz+(-m(i)\*d(i,2)\*d(i,3))

Izx=Izx+(-m(i)\*d(i,1)\*d(i,3))

Izy=Izy+(-m(i)\*d(i,2)\*d(i,3))

I=[Ixx Ixy Ixz;Iyx Iyy Iyz;Izx Izy Izz]

end

disp(I,"I")

[a,b]=spec(I)

q=inv(a)

f=clean(q\*I\*a)

disp(f,"Diagonalized matrix:")

Output:

Enter mass of particle1:4

Enter mass of particle2:5

Enter mass of particle3:6

Enter matrix of coordinates of particles:[1 2 3;4 5 6;7 8 9]

4.

5.

6.

1. 2. 3.

4. 5. 6.

7. 8. 9.

I

1227. -444. -510.

-444. 1080. -606.

-510. -606. 903.

Diagonalized matrix:

4.927276 0. 0.

0. 1600.0727 0.

0. 0. 1605.