EE307 Homework 5

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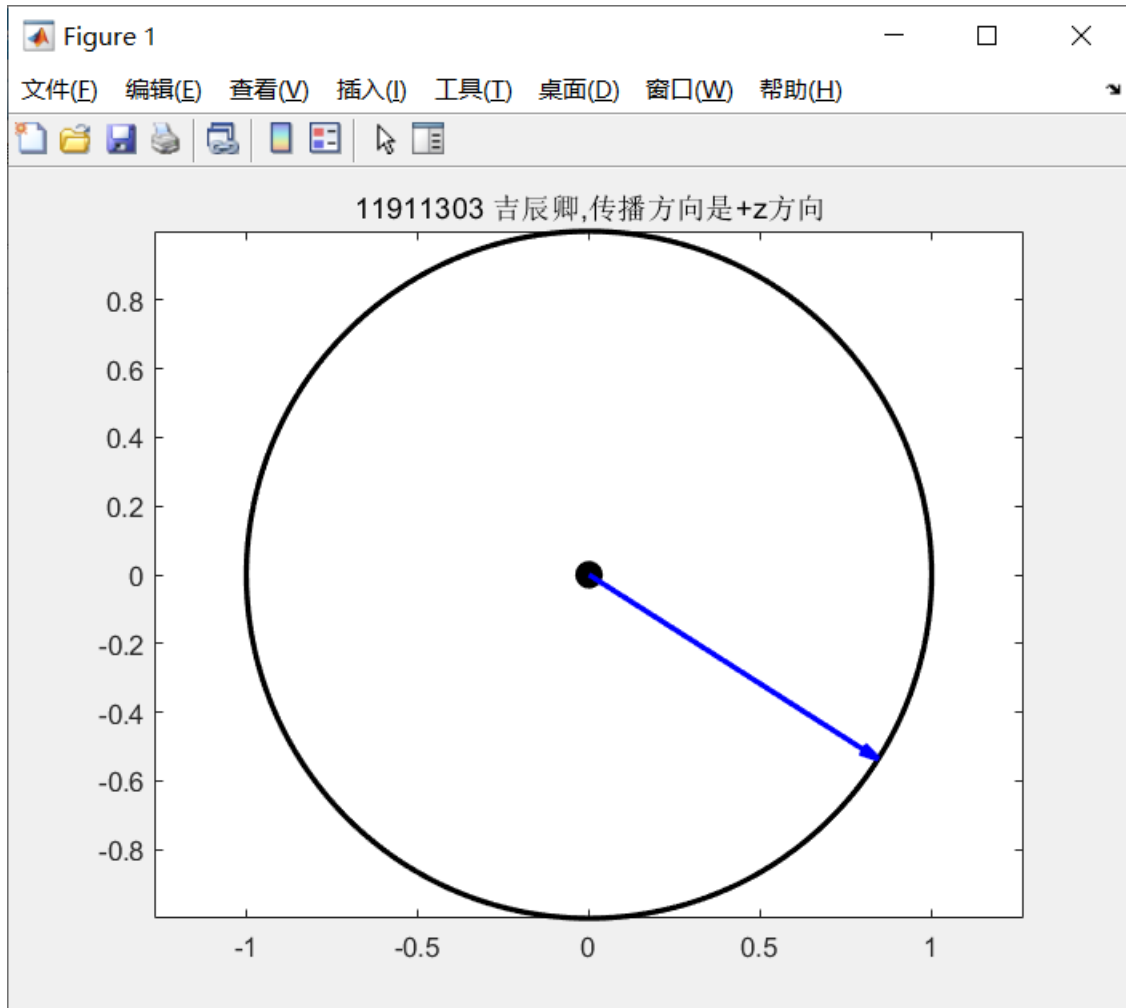# Question 1：

Result:

Figure 1 Left-hand polarization animation in 2D

(Animation can be viewed from the source program)

Sourcr Codes:

```
1  wt=linspace(0,6*pi,900);
2  b1=cos(wt+pi/2);
3  a1=cos(wt);
4  for i=1:1:900
5      plot(a1,b1,'k','LineWidth',2);
```

```
 6        hold on
 7        scatter(0,0,108,'k','filled');
 8        title('11911303 吉辰卿,传播方向是+z方向')
 9        hold on
10        axis equal;
11        quiver(0,0,a1(i),b1(i),1,'b','Linewidth',2);
12        hold off
13        getframe;
14  end
```
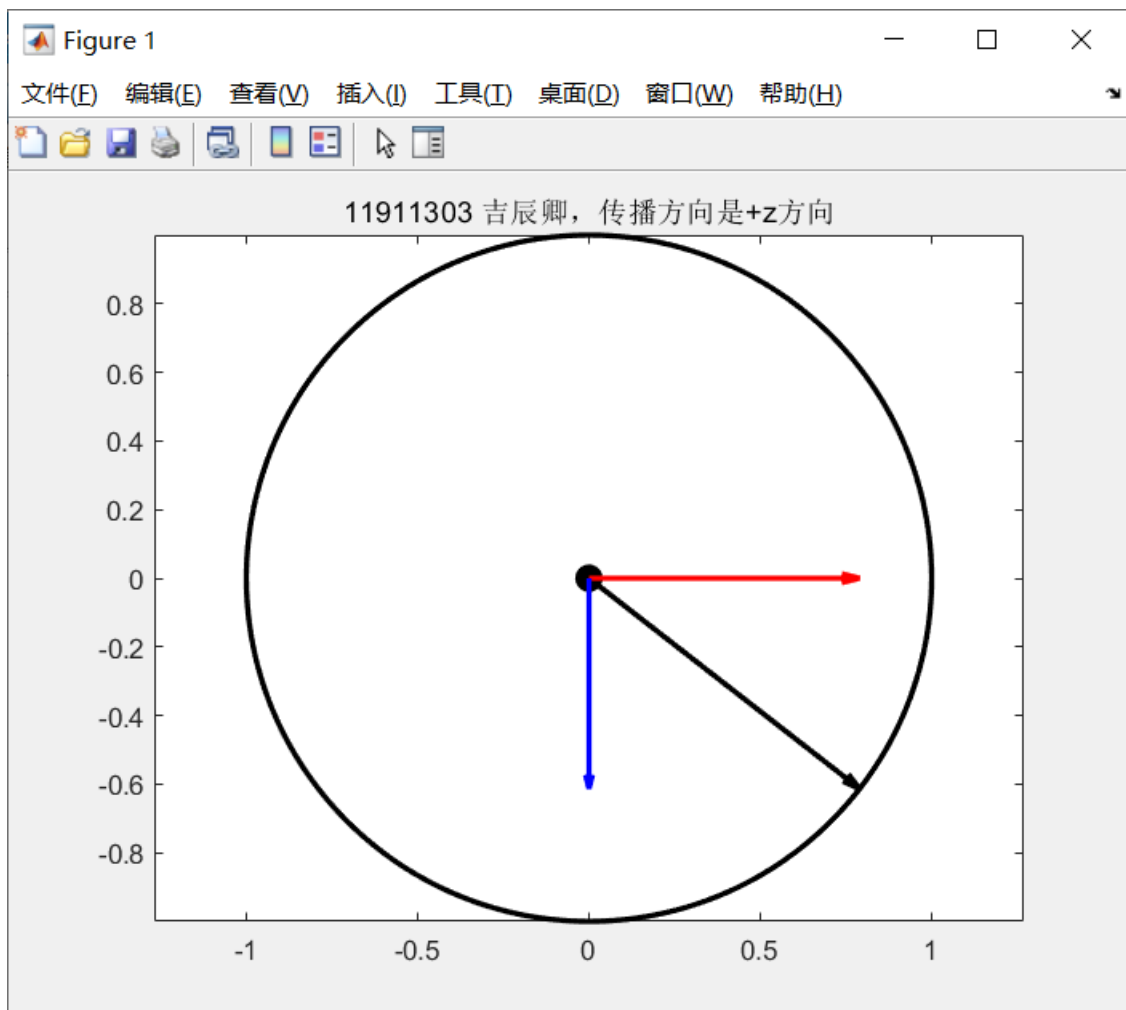
Question 2:

Result:

Figure 2 Left-hand polarization vector Ex + Ey at from ωt= 0 to 6*pi on the same time axis

(Animation can be viewed from the source program)

Sourcr Codes:

```matlab
wt=linspace(0,6*pi,900);
a=cos(wt);
b=cos(wt+pi/2);
for i=1:900
    plot(a,b,'k','LineWidth',2);
    hold on
    scatter(0,0,108,'k','filled');
    title('11911303 吉辰卿，传播方向是+z方向')
    hold on;
    axis equal;
    quiver(0,0,a(i),b(i),1,'k','LineWidth',2);
    quiver(0,0,a(i),0,1,'r','LineWidth',2);
    quiver(0,0,0,b(i),1,'b','LineWidth',2);
    hold off
    getframe;
end
```

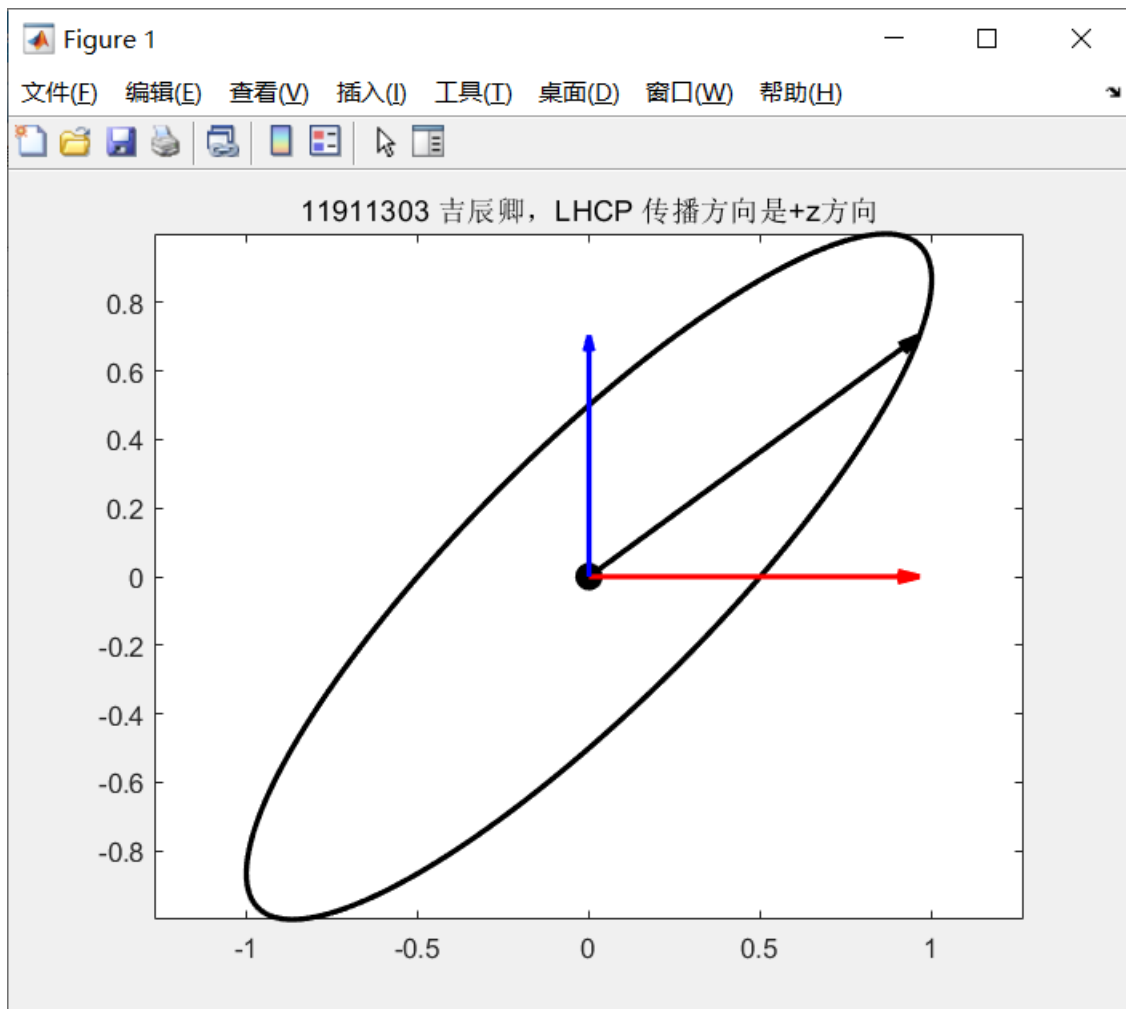# Question 3:

3.1 LHCP

Result:

Figure 3 Animated elliptical polarization using LHCP

(Animation can be viewed from the source program)

Sourcr Codes:

```
1  wt=linspace(0,6*pi,900);
2  a=cos(wt);
3  b=cos(wt+pi/6);
4  for i=1:900
5      plot(a,b,'k','LineWidth',2);
6      hold on
7      scatter(0,0,108,'k','filled');
8      title('11911303 吉辰卿，LHCP 传播方向是+z方向')
9      hold on;
10     axis equal;
11     quiver(0,0,a(i),b(i),1,'k','LineWidth',2);
12     quiver(0,0,a(i),0,1,'r','LineWidth',2);
13     quiver(0,0,0,b(i),1,'b','LineWidth',2);
14     hold off
15     getframe;
```
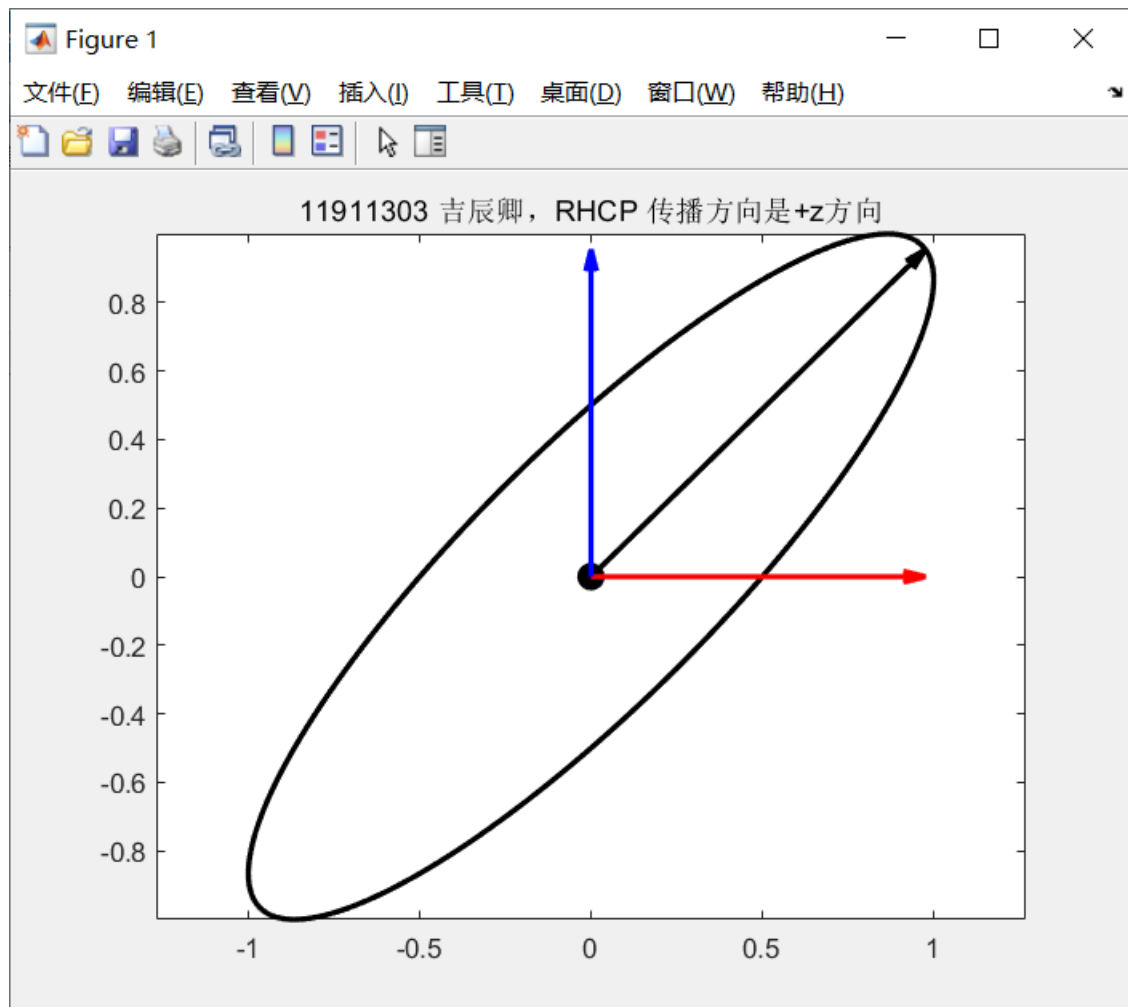
```
16  end
```

3.2 RHCP

Result:

Figure 4 Animated elliptical polarization using RHCP

(Animation can be viewed from the source program)

Sourcr Codes:

```
1  wt=linspace(0,6*pi,900);
2  a=cos(wt);
3  b=cos(wt-pi/6);
4  for i=1:900
5      plot(a,b,'k','LineWidth',2);
6      hold on
7      scatter(0,0,108,'k','filled');
```

```matlab
    title('11911303 吉辰卿，RHCP 传播方向是+z方向')
    hold on;
    axis equal;
    quiver(0,0,a(i),b(i),1,'k','LineWidth',2);
    quiver(0,0,a(i),0,1,'r','LineWidth',2);
    quiver(0,0,0,b(i),1,'b','LineWidth',2);
    hold off
    getframe;
end
```