In [1]:

```python
#适应我的3.11版本，抛弃了弃用的方法
import numpy as np
import matplotlib.pyplot as plt
from mpl_toolkits.mplot3d import Axes3D
from sklearn.cluster import KMeans
from sklearn import datasets

# 设置中文显示
plt.rcParams['font.sans-serif'] = 'SimHei'
plt.rcParams['axes.unicode_minus'] = False

# 加载数据
np.random.seed(5)
iris = datasets.load_iris()
x = iris.data
y = iris.target

# 使用 KMeans 进行聚类
clf = KMeans(n_clusters=3)
clf.fit(x)
labels = clf.labels_

# 创建 3D 图形
fig = plt.figure(figsize=(8, 6))
ax = fig.add_subplot(111, projection='3d', elev=48, azim=134)  # 直接使用 add_subplot
ax.scatter(x[:, 3], x[:, 0], x[:, 2], c=labels.astype(float), edgecolor='k')  # 使用 float 替代 np.float
ax.w_xaxis.set_ticklabels([])
ax.w_yaxis.set_ticklabels([])
ax.w_zaxis.set_ticklabels([])
ax.set_xlabel('花瓣宽度')
ax.set_ylabel('花瓣长度')
ax.set_zlabel('花瓣高度')
ax.set_title('KMeans Clustering on Iris Dataset')
ax.dist = 12
plt.show()
```

```
C:\Users\fl\AppData\Local\Temp\ipykernel_18844\2522738645.py:27: MatplotlibDeprecationWarning: The w_xaxis attribute was deprec
ated in Matplotlib 3.1 and will be removed in 3.8. Use xaxis instead.
  ax.w_xaxis.set_ticklabels([])
C:\Users\fl\AppData\Local\Temp\ipykernel_18844\2522738645.py:28: MatplotlibDeprecationWarning: The w_yaxis attribute was deprec
ated in Matplotlib 3.1 and will be removed in 3.8. Use yaxis instead.
  ax.w_yaxis.set_ticklabels([])
C:\Users\fl\AppData\Local\Temp\ipykernel_18844\2522738645.py:29: MatplotlibDeprecationWarning: The w_zaxis attribute was deprec
ated in Matplotlib 3.1 and will be removed in 3.8. Use zaxis instead.
  ax.w_zaxis.set_ticklabels([])
C:\Users\fl\AppData\Local\Temp\ipykernel_18844\2522738645.py:34: MatplotlibDeprecationWarning: The dist attribute was deprecate
d in Matplotlib 3.6 and will be removed two minor releases later.
  ax.dist = 12
```

KMeans Clustering on Iris Dataset