In [45]:

```
import pandas as pd
import sys
sys.path.append("../src")
import cconfig
import utils
```

BiFlow

K-Means - Extreme value based

In [46]:

```
df=utils.load("../outputs/BiFlow/BIFLOW_df_anomalies_kmeans_z")
```

In [47]:

```
df.shape
```

Out[47]:

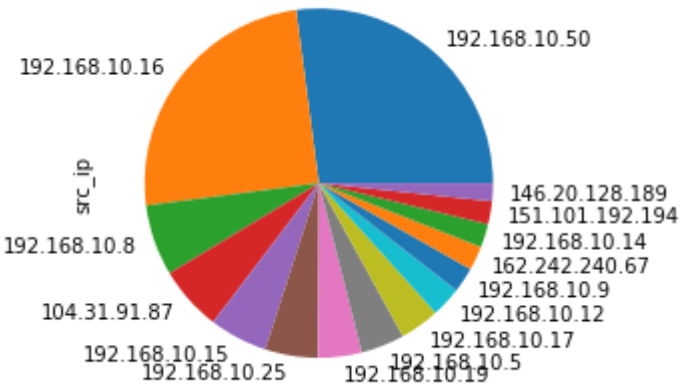
```
(2513, 58)
```

In [48]:

```
df.src_ip.value_counts()[:15].plot.pie()
```

Out[48]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f38482f2320>
```

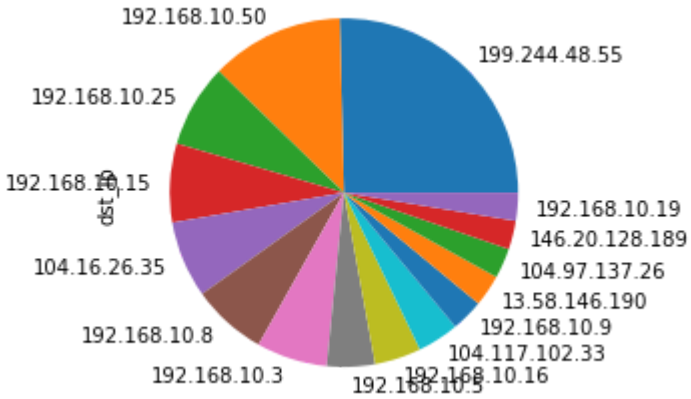


In [49]:

```
df.dst_ip.value_counts()[:15].plot.pie()
```

Out[49]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f38482eb198>
```



K-Means - Proximity based

In [50]:

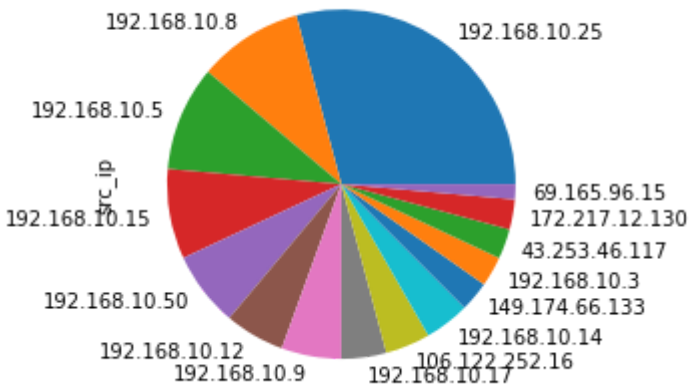
```
df=utils.load("../outputs/BiFlow/BIFLOW_df_anomalies_kmeans_anomalies_proximity"
)
```

In [51]:

```
df.src_ip.value_counts()[:15].plot.pie()
```

Out[51]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f38482f2710>
```

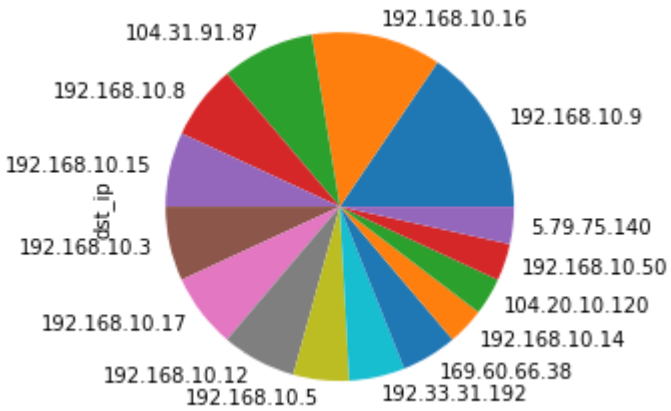


In [52]:

```
df.dst_ip.value_counts()[:15].plot.pie()
```

Out[52]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f384851ac88>
```



IForest

In [53]:

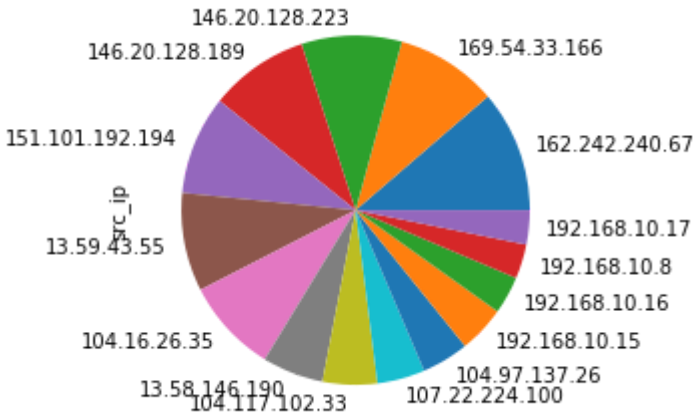
```
df=utils.load("../outputs/BiFlow/BIFLOW_df_anomalies_iforest")
```

In [54]:

```
df.src_ip.value_counts()[:15].plot.pie()
```

Out[54]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f38482040b8>
```

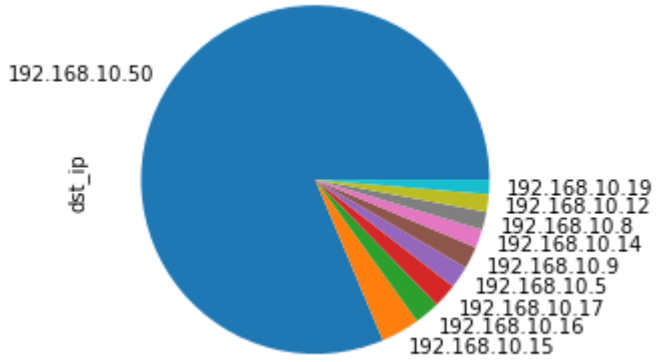


In [55]:

```
df.dst_ip.value_counts()[:10].plot.pie()
```

Out[55]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f3849773160>
```



LOF

In [60]:

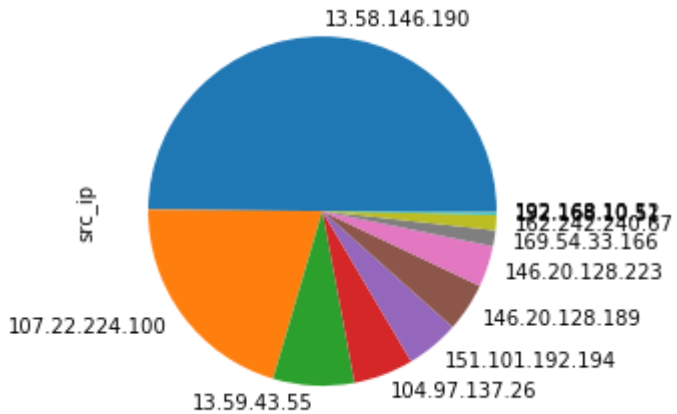
```
df=utils.load("../outputs/BiFlow/BIFLOW_df_anomalies_lof")
```

In [61]:

```
df.src_ip.value_counts()[:15].plot.pie()
```

Out[61]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f3853240940>
```

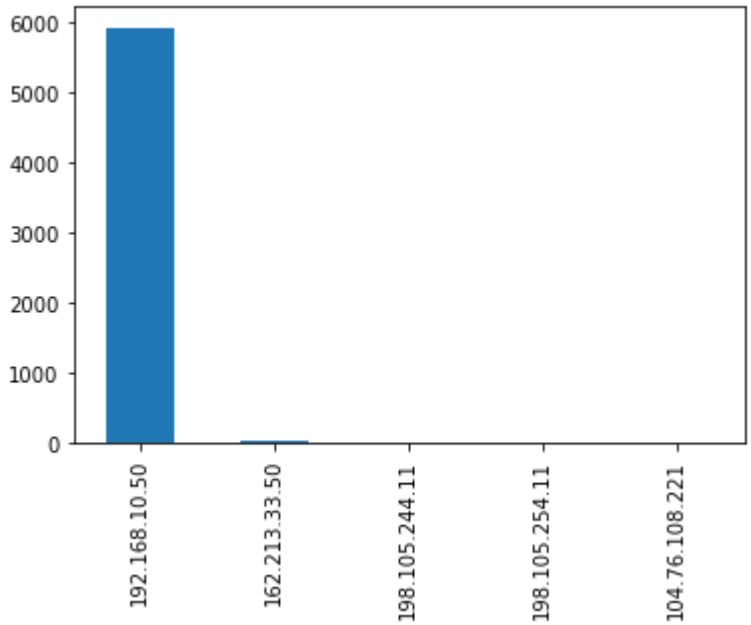


In [62]:

```
df.dst_ip.value_counts()[:15].plot.bar()
```

Out[62]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f385317dda0>
```



OCSVM

In [63]:

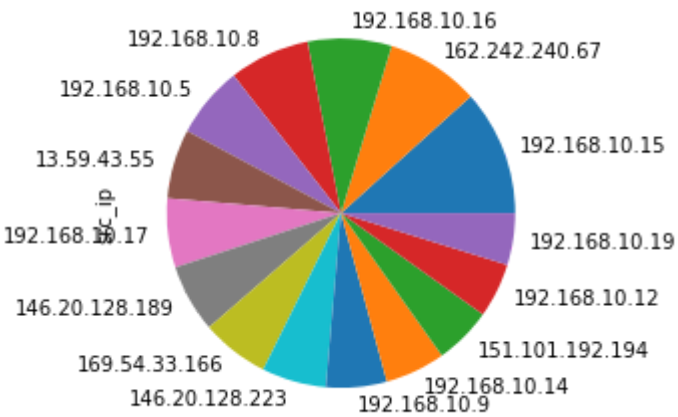
```
df=utils.load("../outputs/BiFlow/BIFLOW_df_anomalies_ocsvm")
```

In [64]:

```
df.src_ip.value_counts()[:15].plot.pie()
```

Out[64]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f38516d7748>
```

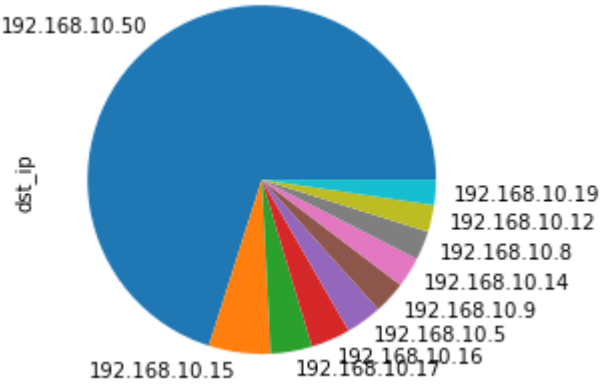


In [65]:

```
df.dst_ip.value_counts()[:10].plot.pie()
```

Out[65]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f3852f43160>
```



UniFlow

K-Means - Extreme value based

In [66]:

```
df=utils.load("../outputs/UniFlow/FLOW_df_anomalies_kmeans_z")
```

In [67]:

```
df.shape
```

Out[67]:

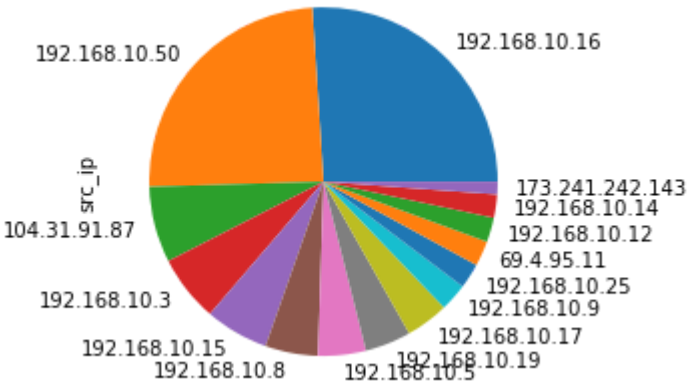
```
(2936, 35)
```

In [68]:

```
df.src_ip.value_counts()[:15].plot.pie()
```

Out[68]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f38521555c0>
```

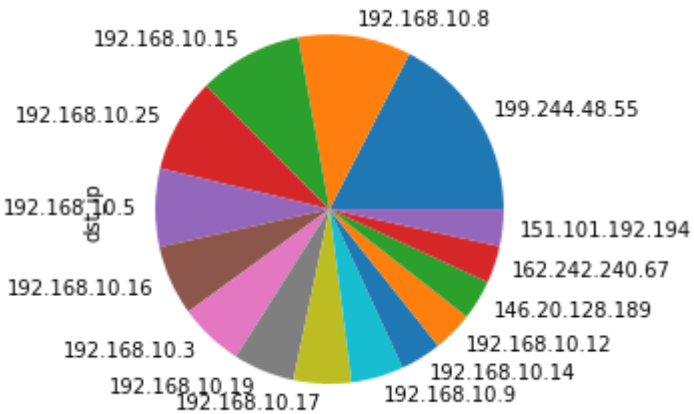


In [69]:

```
df.dst_ip.value_counts()[:15].plot.pie()
```

Out[69]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f38516fc978>
```



K-Means - Proximity based

In [70]:

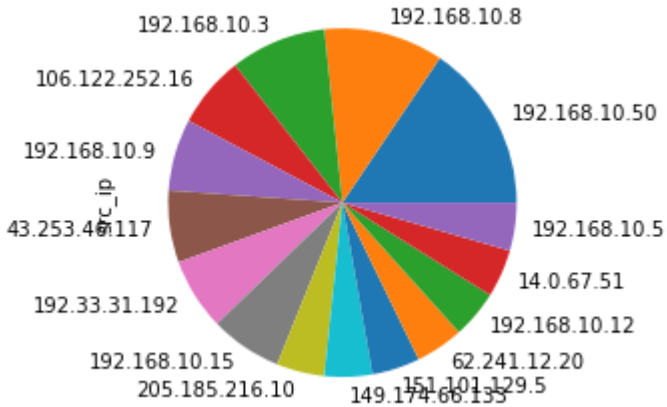
```
df=utils.load("../outputs/UniFlow/FLOW_df_anomalies_kmeans_anomalies_proximity")
```

In [71]:

```
df.src_ip.value_counts()[:15].plot.pie()
```

Out[71]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f3852d8ed30>
```

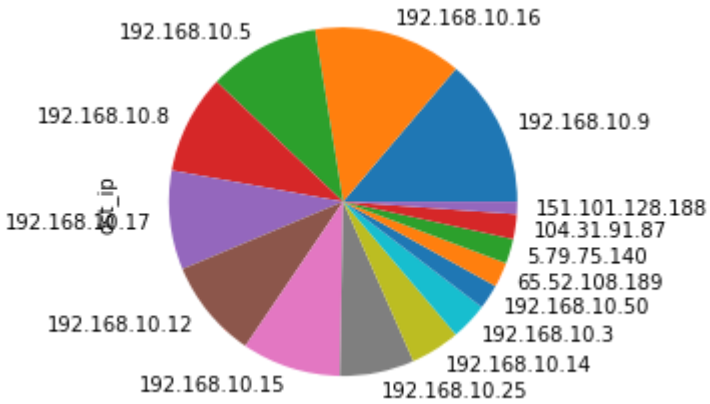


In [72]:

```
df.dst_ip.value_counts()[:15].plot.pie()
```

Out[72]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f3852e0b4e0>
```



IForest

In [73]:

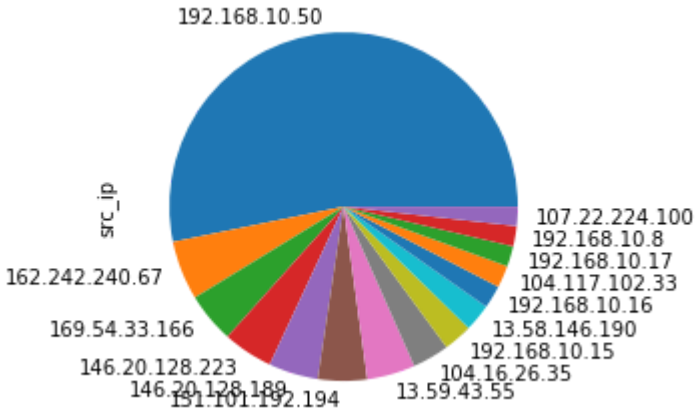
```
df=utils.load("../outputs/UniFlow/FLOW_df_anomalies_iforest")
```

In [74]:

```
df.src_ip.value_counts()[:15].plot.pie()
```

Out[74]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f3852bc8da0>
```

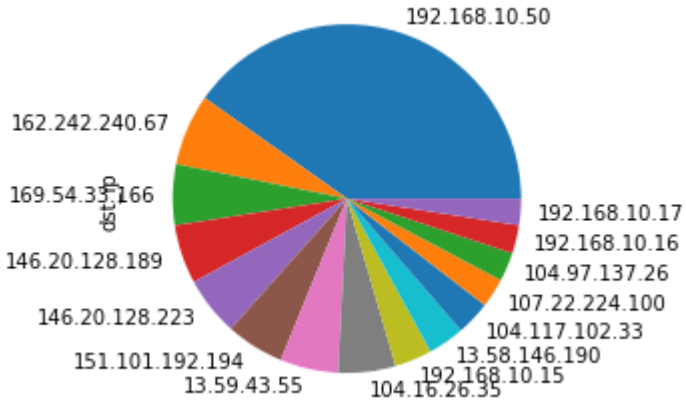


In [75]:

```
df.dst_ip.value_counts()[:15].plot.pie()
```

Out[75]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f38510285f8>
```



OCSVM

In [78]:

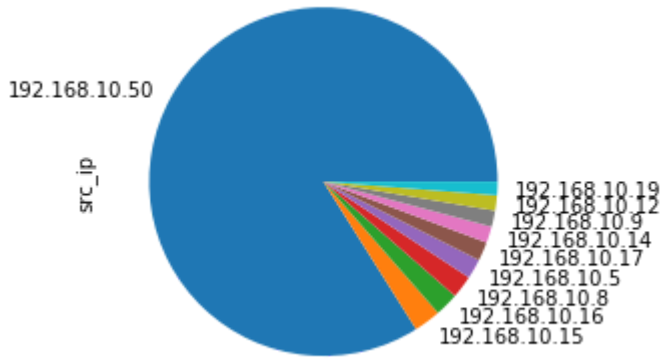
```
df=utils.load("../outputs/UniFlow/FLOW_df_anomalies_ocsvm")
```

In [79]:

```
df.src_ip.value_counts()[:10].plot.pie()
```

Out[79]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f3851026dd8>
```

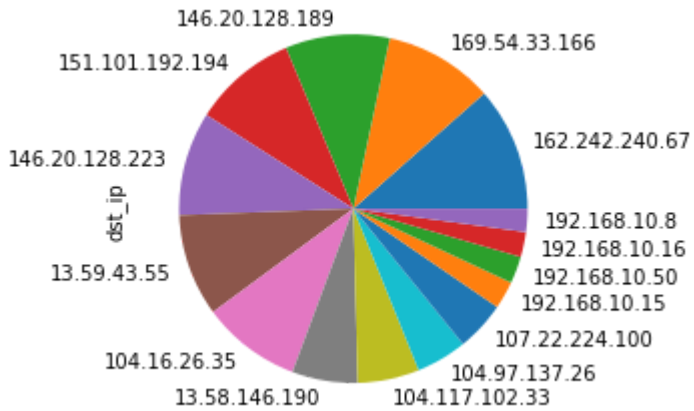


In [80]:

```
df.dst_ip.value_counts()[:15].plot.pie()
```

Out[80]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f3850a2fdd8>
```



LOF

In [81]:

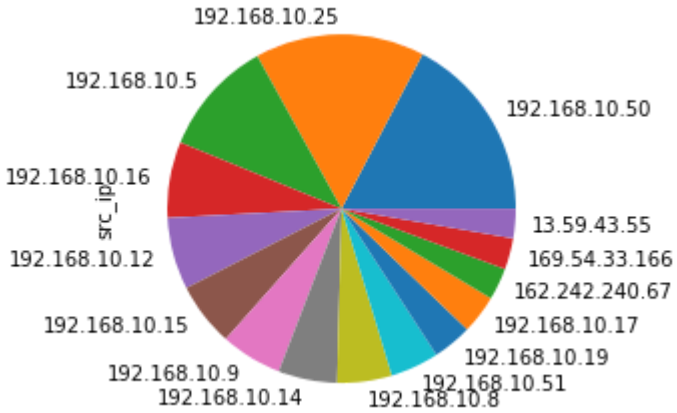
```
df=utils.load("../outputs/UniFlow/FLOW_df_anomalies_lof")
```

In [82]:

```
df.src_ip.value_counts()[:15].plot.pie()
```

Out[82]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f38524f8be0>
```

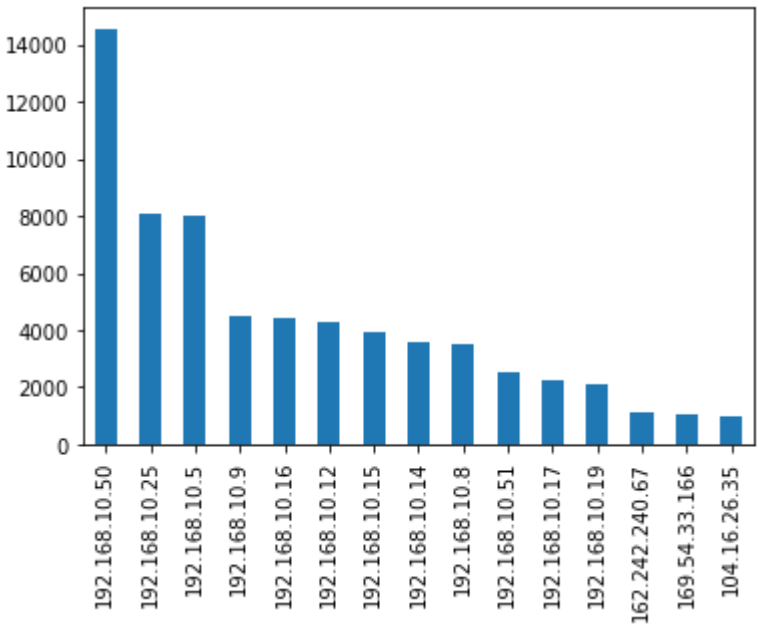


In [83]:

```
df.dst_ip.value_counts()[:15].plot.bar()
```

Out[83]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f3850394128>
```



In [ ]:

```

```

In [ ]:

```

```