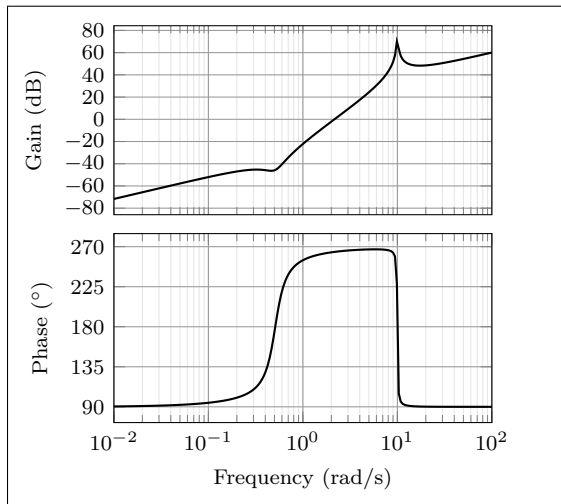


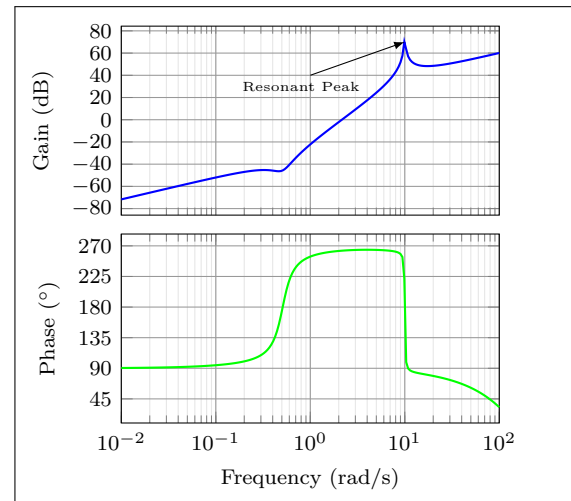
Bode plot in ZPK format



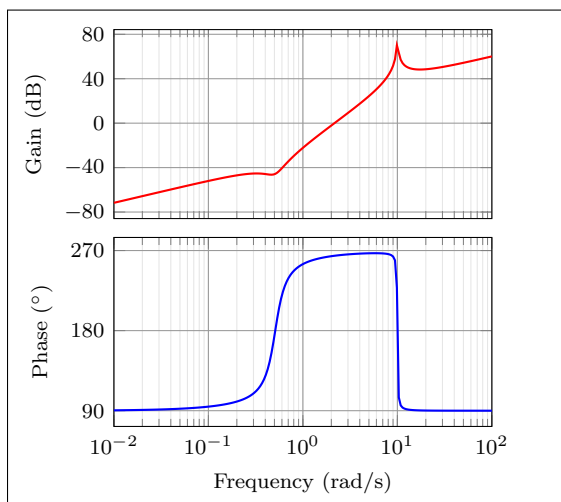
```
1 \BodeZPK{%
2   z/{0,{-0.1,-0.5},{-0.1,0.5}},
3   p/{{-0.1,-10},{-0.1,10}},
4   k/10
5 }
6 {0.01}
7 {100}
```

Bode plot in TF format with arrow

```
1 \BodeTF{%
2   plot/mag/{blue,thick},
3   plot/ph/{green,thick},
4   tikz/{>=latex},
5   commands/mag/{
6     \draw[->](axis cs:1,40) -- (axis cs:10,70);
7     \node at (axis cs: 0.8,30) {\tiny Resonant Peak};
8   }%
9 ]
10 {num/{10,2,2.6,0},den/{1,0.2,100},d/0.01}
11 {0.01}
12 {100}
```



Linear approximation with customization



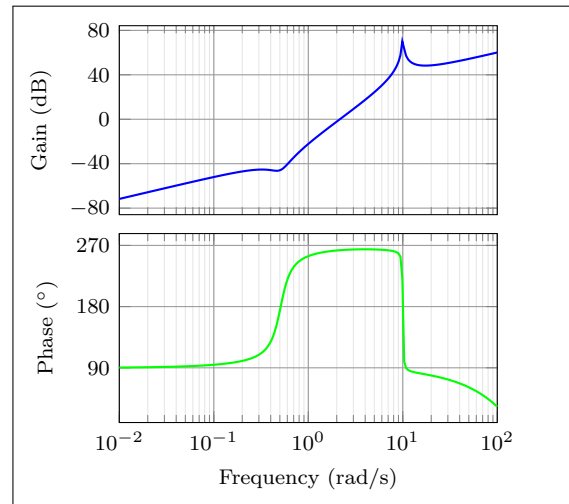
```
1 \BodeZPK{%
2   plot/mag/{red,thick},
3   plot/ph/{blue,thick},
4   axes/mag/{ytick distance=40},
5   axes/ph/{ytick distance=90},
6   approx/linear
7 }%
8 z/{0,{-0.1,-0.5},{-0.1,0.5}},
9 p/{{-0.1,-10},{-0.1,10}},
10 k/10
11 }
12 {0.01}
13 {100}
```

Plot with delay and customization

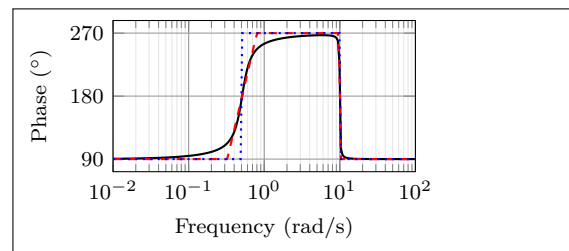
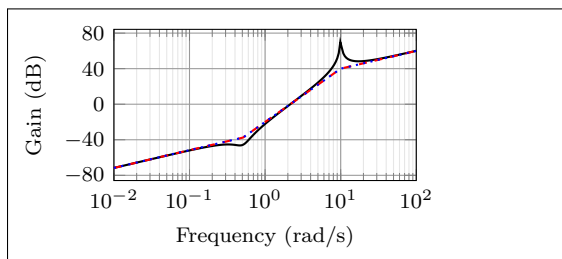
```

1 \BodeZPK[
2   plot/mag/{blue,thick},
3   plot/ph/{green,thick},
4   axes/mag/ytick distance=40,
5   axes/ph/ytick distance=90
6 ]{%
7   z/{0,{-0.1,-0.5},{-0.1,0.5}},
8   p/{{-0.1,-10},{-0.1,10}},
9   k/10,
10  d/0.01
11 }
12 {0.01}
13 {100}

```



Individual gain and phase plots with more customization



```

1 \begin{BodePlot}{%
2   axes/{ylabel={Gain (dB)}},
3   ytick distance=40,
4   height=2cm,
5   width=4cm}
6 ]
7 {0.01}
8 {100}
9 \addBodeZPKPlots[%
10  true/{black,thick},
11  linear/{red,dashed,thick},
12  asymptotic/{blue,dotted,thick}%
13 ]
14 {magnitude}
15 {%
16   z/{0,{-0.1,-0.5},{-0.1,0.5}},
17   p/{{-0.1,-10},{-0.1,10}},
18   k/10
19 }
20 \end{BodePlot}

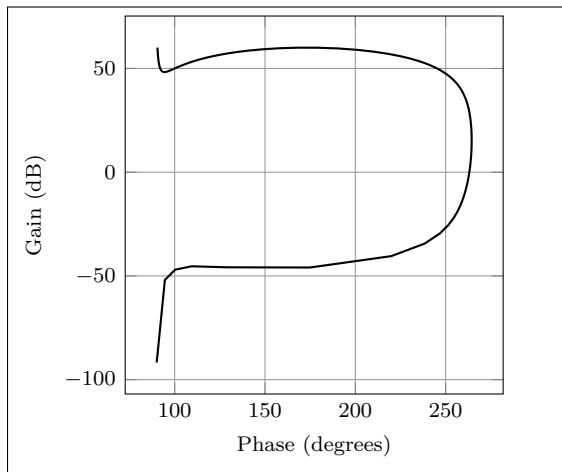
```

```

1 \begin{BodePlot}{%
2   ylabel={Phase ($^{\circ}$)},
3   height=2cm,
4   width=4cm,
5   ytick distance=90
6 ]
7 {0.01}
8 {100}
9 \addBodeZPKPlots[%
10  true/{black,thick},
11  linear/{red,dashed,thick},
12  asymptotic/{blue,dotted,thick}%
13 ]
14 {phase}
15 {%
16   z/{0,{-0.1,-0.5},{-0.1,0.5}},
17   p/{{-0.1,-10},{-0.1,10}},
18   k/10
19 }
20 \end{BodePlot}

```

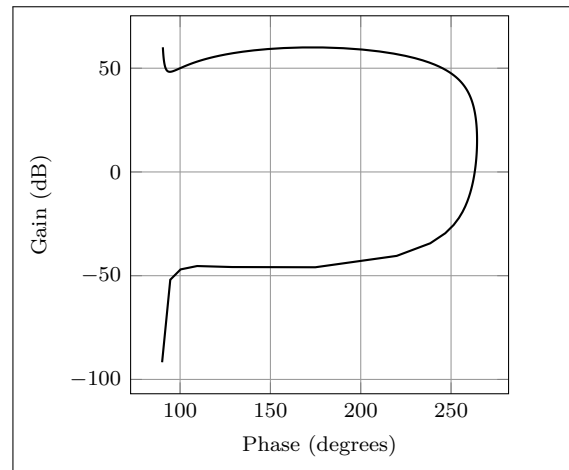
Nichols chart



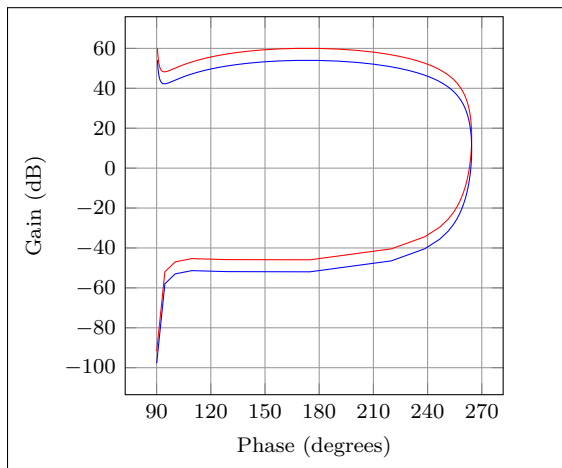
```
1 \NicholsZPK[samples=1000]
2 {%
3   z/{0,{-0.1,-0.5},{-0.1,0.5}},
4   p/{{-0.5,-10},{-0.5,10}},
5   k/10
6 }
7 {0.001}
8 {100}
```

Nichols chart in TF format

```
1 \NicholsTF[samples=1000]
2 {num/{10,2,2.6,0},den/{1,1,100.25}}
3 {0.001}
4 {100}
```



Multiple Nichols charts with customization



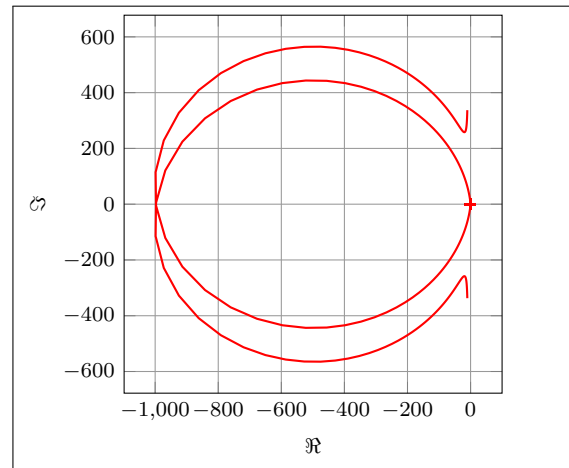
```
1 \begin{NicholsChart}[%
2   ytick distance=20,
3   xtick distance=30
4 ]
5 {0.001}
6 {100}
7 \addNicholsZPKChart [red,samples=1000] {%
8   z/{0,{-0.1,-0.5},{-0.1,0.5}},
9   p/{{-0.5,-10},{-0.5,10}},
10  k/10
11 };
12 \addNicholsZPKChart [blue,samples=1000] {%
13   z/{0,{-0.1,-0.5},{-0.1,0.5}},
14   p/{{-0.5,-10},{-0.5,10}},
15   k/5
16 };
17 \end{NicholsChart}
```

Nyquist plot

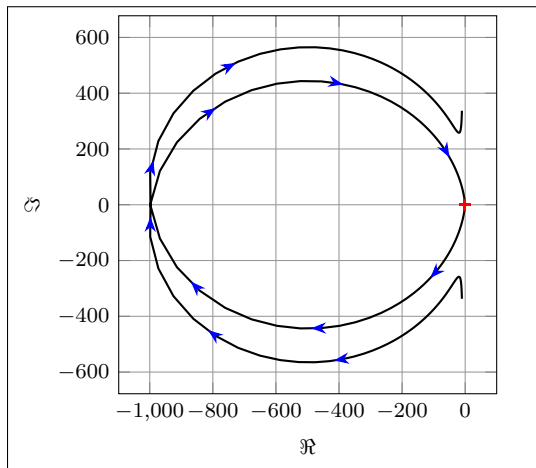
```

1 \NyquistZPK[plot/{red,thick,samples=1000}]
2 {%
3   z/{0,{-0.1,-0.5},{-0.1,0.5}},
4   p/{{-0.5,-10},{-0.5,10}},
5   k/10
6 }
7 {-30}
8 {30}

```



Nyquist plot in TF format with arrows



```

1 \NyquistTF[%
2   plot/{%
3     samples=1000,
4     postaction=decorate,
5     decoration={%
6       markings,
7       mark=between positions 0.1 and 0.9 step 5em with {
8         %
9         \arrow{Stealth [length=2mm, blue]}
10      }
11    }%
12  ]
13 {num/{10,2,2.6,0},den/{1,1,100.25}}
14 {-30}
15 {30}

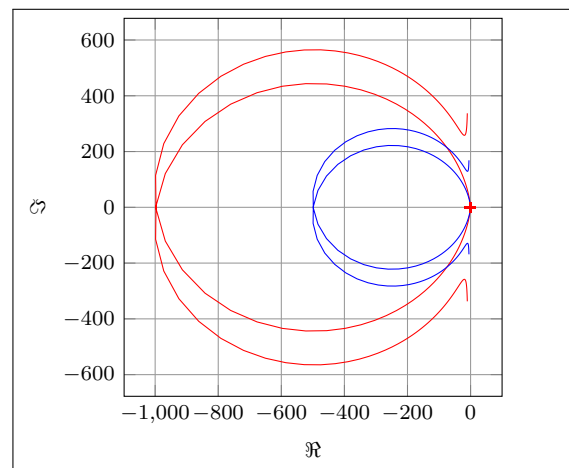
```

Multiple Nyquist plots with customization

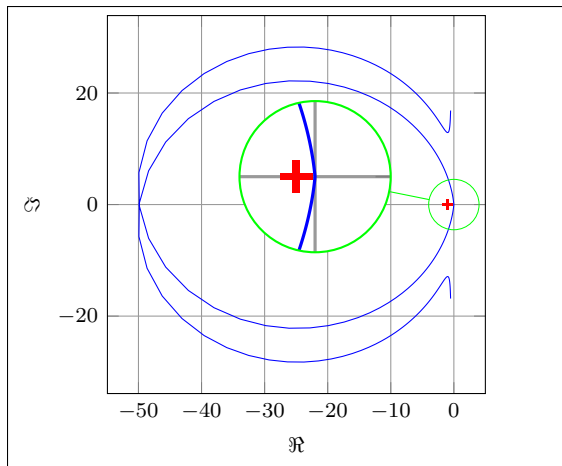
```

1 \begin{NyquistPlot}{-30}{30}
2   \addNyquistZPKPlot [red,samples=1000] {%
3     z/{0,{-0.1,-0.5},{-0.1,0.5}},
4     p/{{-0.5,-10},{-0.5,10}},
5     k/10
6   };
7   \addNyquistZPKPlot [blue,samples=1000] {%
8     z/{0,{-0.1,-0.5},{-0.1,0.5}},
9     p/{{-0.5,-10},{-0.5,10}},
10    k/5
11  };
12 \end{NyquistPlot}

```



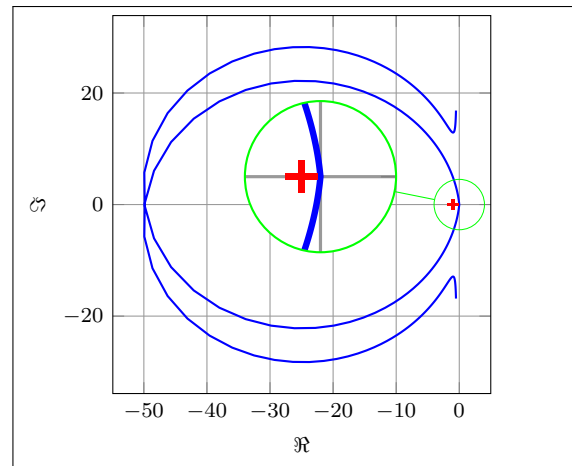
Nyquist plots with additional commands, using two different macros



```

1 \begin{NyquistPlot}{%
2   tikz/{%
3     spy using outlines={%
4       circle,
5       magnification=3,
6       connect spies,
7       size=2cm
8     }%
9   }%
10 ]
11 {-30}{30}
12 \addNyquistZPKPlot [blue,samples=1000] {%
13   z/{0,{-0.1,-0.5},{-0.1,0.5}},
14   p/{{-0.5,-10},{-0.5,10}},
15   k/0.5
16 };
17 \coordinate (spyon) at (axis cs:0,0);
18 \coordinate (spyat) at (axis cs:-22,5);
19 \spy [green] on (spyon) in
20   node [fill=white] at (spyat);
21 \end{NyquistPlot}

```



```

1 \NyquistZPK[%
2   plot/{blue,samples=1000},
3   tikz/{%
4     spy using outlines={%
5       circle,
6       magnification=3,
7       connect spies,
8       size=2cm
9     }%
10 },
11   commands/{%
12     \coordinate (spyon) at (axis cs:0,0);
13     \coordinate (spyat) at (axis cs:-22,5);
14     \spy [green] on (spyon) in
15       node [fill=white] at (spyat);
16   }%
17 ]%
18 {
19   z/{0,{-0.1,-0.5},{-0.1,0.5}},
20   p/{{-0.5,-10},{-0.5,10}},
21   k/0.5
22 }
23 {-30}
24 {30}

```