

Filterdesign mit Matlab

Beispiel: Elliptisches Filter Lowpass 6. Ordnung 1dB Ripple, 60dB Stopband, Grenzfreq. 0.4 rad/sample

Realizemdl

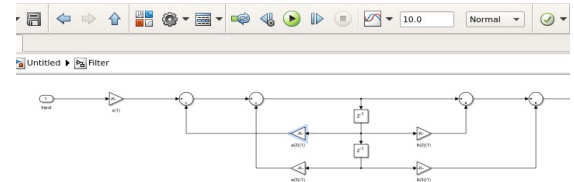
% [B,A] = ELLIP(N,Rp,Rs,Wp) coeff. in length N+1 vectors B (numerator) and A (denom)
% zeros and poles are returned in length N **column** vectors Z and P, and the gain in scalar K.

```
[z,p,k] = ellip(6,1,60,.4,'low'); % Obtain filter coefficients
```

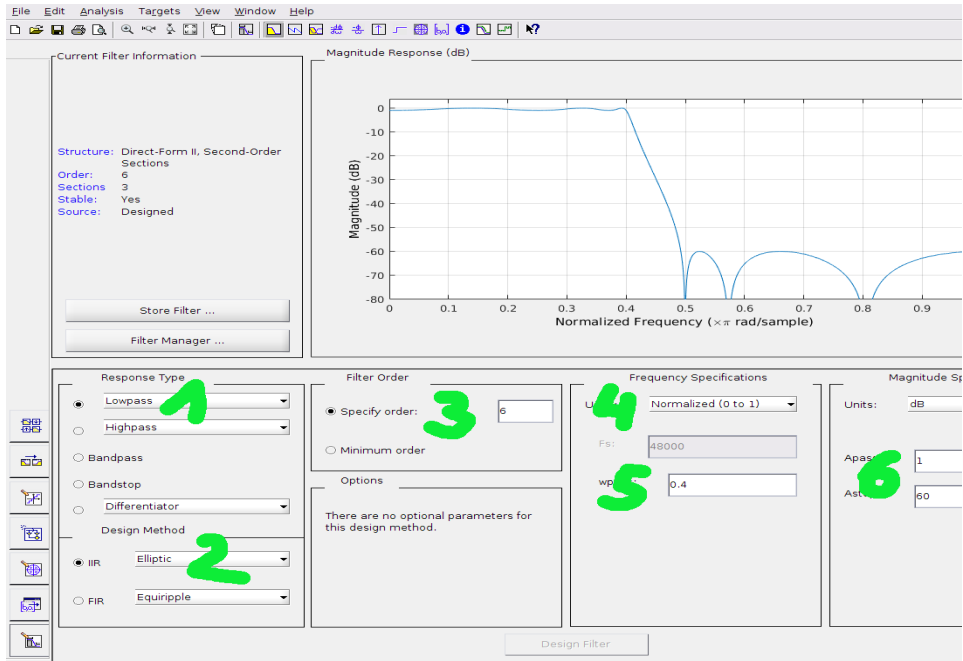
```
[s,g] = zp2sos(z,p,k); % Convert to SOS second order sections
```

```
Hd = dfilt.df2sos(s,g)
```

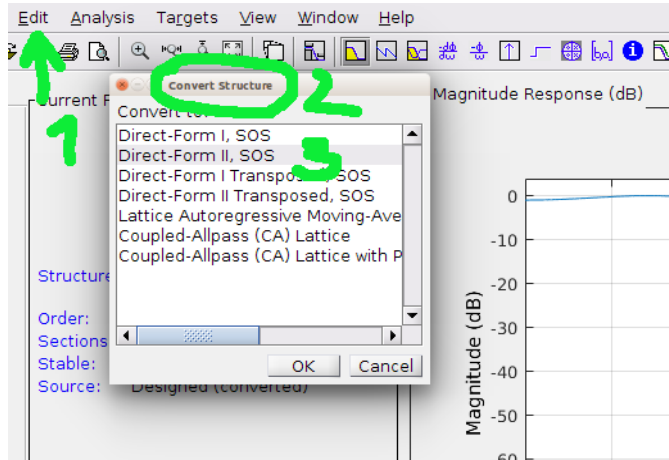
```
realizemdl(Hd) % Requires Simulink
```



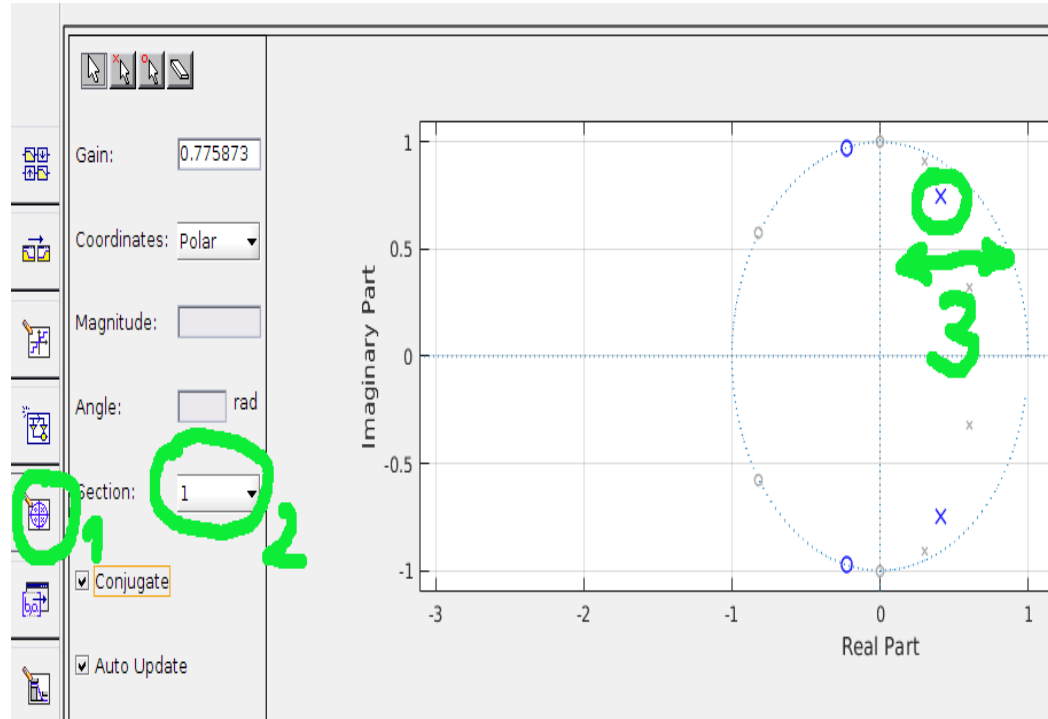
fdatool (Filter Design and Analyses Tool)



Change Structure



Zero Pole Diagram with moveable Poles and Zeros



Realize Model

The screenshot shows the 'Realize Model' dialog box with several green annotations. A vertical toolbar on the left contains icons for various operations, with a green circle and the number '1' around the 'Build Model' icon. The 'Model' section contains a 'Block name' field with 'Elliptic_Ord6' (circled with a green circle and the number '2'), a 'Destination' dropdown set to 'Current', and a 'User Defined' field set to 'Untitled'. Below these are two checked checkboxes: 'Overwrite generated 'Elliptic_Ord6' block' and 'Build Model using basic elements' (circled with a green circle and the number '3'). The 'Input processing' section shows a dropdown set to 'Elements as channels (sample based)'. The 'Optimization' section on the right has five checked options: 'Optimize for zero gains', 'Optimize for unity gains', 'Optimize for negative gains', 'Optimize delay chains', and 'Optimize for unity scale values'. A green circle and the number '4' are around the 'Realize Model' button at the bottom right.

Model

Block name: Elliptic_Ord6

Destination: Current

User Defined: Untitled

☒ Overwrite generated 'Elliptic_Ord6' block

☒ Build Model using basic elements

Input processing: Elements as channels (sample based)

Optimization

☒ Optimize for zero gains

☒ Optimize for unity gains

☒ Optimize for negative gains

☒ Optimize delay chains

☒ Optimize for unity scale values

Realize Model

Control Structure in Simulink by double clicking the block symbol.