Calculates linear-phase FIR filter coefficients by window method.

$ord := 64 \quad \omega_0 := 0.3 \quad \omega_1 := 0.7 \quad N := 1024 \quad \omega := \text{dspl\_linspace}(0, \pi, N, \text{"periodic"})$

$b := \text{dspl\_fir\_linphase}(ord, \omega_0, \omega_1, \text{"lpf"}, \text{"rect"}, 0)$

$mag_{11} := \text{dspl\_filter\_freq\_resp}(b, 0, ord, \omega, \text{"mag|logmag"})_1$

$b := \text{dspl\_fir\_linphase}(ord, \omega_0, \omega_1, \text{"lpf"}, \text{"hamming"}, 0)$

$mag_{12} := \text{dspl\_filter\_freq\_resp}(b, 0, ord, \omega, \text{"mag|logmag"})_1$

$b := \text{dspl\_fir\_linphase}(ord, \omega_0, \omega_1, \text{"lpf"}, \text{"blackman"}, 0)$

$mag_{13} := \text{dspl\_filter\_freq\_resp}(b, 0, ord, \omega, \text{"mag|logmag"})_1$

$b := \text{dspl\_fir\_linphase}(ord, \omega_0, \omega_1, \text{"lpf"}, \text{"blackman\_harris"}, 0)$

$mag_{14} := \text{dspl\_filter\_freq\_resp}(b, 0, ord, \omega, \text{"mag|logmag"})_1$

$b := \text{dspl\_fir\_linphase}(ord, \omega_0, \omega_1, \text{"hpf"}, \text{"rect"}, 0)$

$mag_{21} := \text{dspl\_filter\_freq\_resp}(b, 0, ord, \omega, \text{"mag|logmag"})_1$

$b := \text{dspl\_fir\_linphase}(ord, \omega_0, \omega_1, \text{"hpf"}, \text{"hamming"}, 0)$

$mag_{22} := \text{dspl\_filter\_freq\_resp}(b, 0, ord, \omega, \text{"mag|logmag"})_1$

$b := \text{dspl\_fir\_linphase}(ord, \omega_0, \omega_1, \text{"hpf"}, \text{"blackman"}, 0)$

$mag_{23} := \text{dspl\_filter\_freq\_resp}(b, 0, ord, \omega, \text{"mag|logmag"})_1$

$b := \text{dspl\_fir\_linphase}(ord, \omega_0, \omega_1, \text{"hpf"}, \text{"blackman\_harris"}, 0)$

$mag_{24} := \text{dspl\_filter\_freq\_resp}(b, 0, ord, \omega, \text{"mag|logmag"})_1$

$b := \text{dspl\_fir\_linphase}(ord, \omega_0, \omega_1, \text{"bpass"}, \text{"rect"}, 0)$

$mag_{31} := \text{dspl\_filter\_freq\_resp}(b, 0, ord, \omega, \text{"mag|logmag"})_1$

$b := \text{dspl\_fir\_linphase}(ord, \omega_0, \omega_1, \text{"bpass"}, \text{"hamming"}, 0)$

$mag_{32} := \text{dspl\_filter\_freq\_resp}(b, 0, ord, \omega, \text{"mag|logmag"})_1$

$b := \text{dspl\_fir\_linphase}(ord, \omega_0, \omega_1, \text{"bpass"}, \text{"blackman"}, 0)$

$mag_{33} := \text{dspl\_filter\_freq\_resp}(b, 0, ord, \omega, \text{"mag|logmag"})_1$

$b := \text{dspl\_fir\_linphase}(ord, \omega_0, \omega_1, \text{"bpass"}, \text{"blackman\_harris"}, 0)$

$mag_{34} := \text{dspl\_filter\_freq\_resp}(b, 0, ord, \omega, \text{"mag|logmag"})_1$

$b := \text{dspl\_fir\_linphase}(ord, \omega_0, \omega_1, \text{"bstop"}, \text{"rect"}, 0)$

$mag_{41} := \text{dspl\_filter\_freq\_resp}(b, 0, ord, \omega, \text{"mag|logmag"})_1$

$b := \text{dspl\_fir\_linphase}(ord, \omega_0, \omega_1, \text{"bstop"}, \text{"hamming"}, 0)$

$mag_{42} := \text{dspl\_filter\_freq\_resp}(b, 0, ord, \omega, \text{"mag|logmag"})_1$

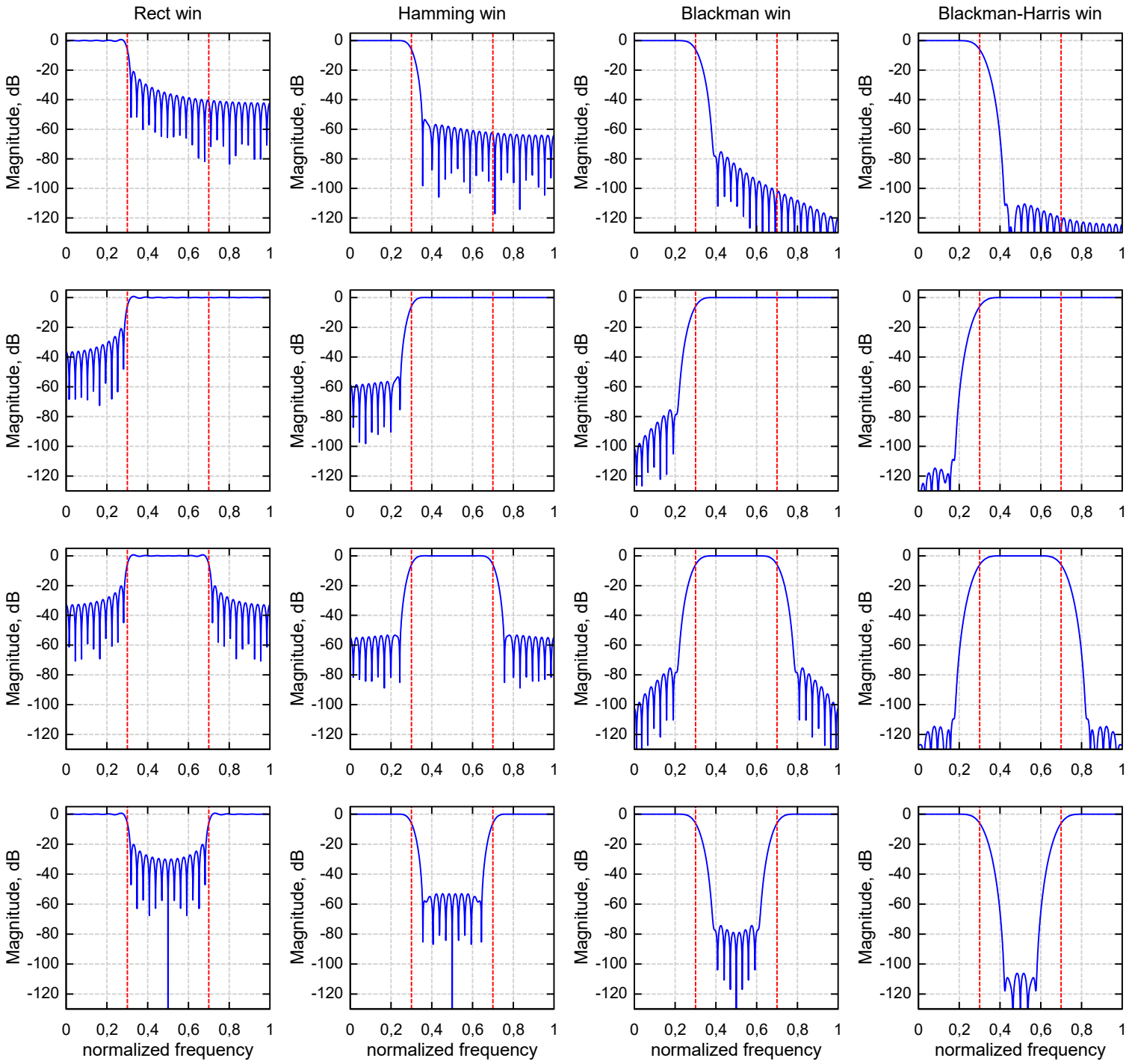
$b := \text{dspl\_fir\_linphase}(ord, \omega_0, \omega_1, \text{"bstop"}, \text{"blackman"}, 0)$

$mag_{43} := \text{dspl\_filter\_freq\_resp}(b, 0, ord, \omega, \text{"mag|logmag"})_1$

$b := \text{dspl\_fir\_linphase}(ord, \omega_0, \omega_1, \text{"bstop"}, \text{"blackman\_harris"}, 0)$

$mag_{44} := \text{dspl\_filter\_freq\_resp}(b, 0, ord, \omega, \text{"mag|logmag"})_1$

$\omega := \frac{\overrightarrow{\omega}}{\pi} \quad f_1 := \begin{bmatrix} \omega_0 & -130 \\ \omega_0 & 5 \end{bmatrix} \quad f_2 := \begin{bmatrix} \omega_1 & -130 \\ \omega_1 & 5 \end{bmatrix}$


Rect win
Hamming win
Blackman win
Blackman-Harris win
Magnitude, dB
0
-20
-40
-60
-80
-100
-120
0
0,2
0,4
0,6
0,8
1
normalized frequency