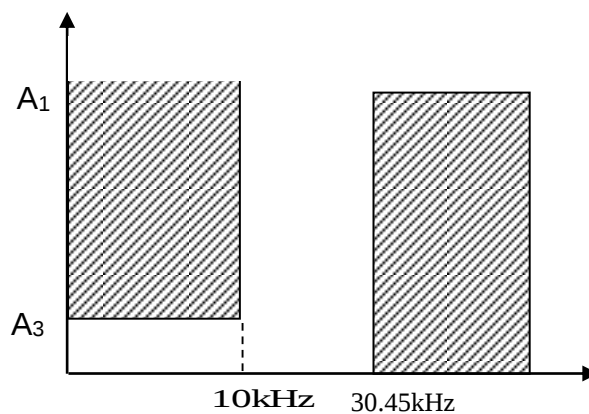


Denormalization in frequency and in impedance

Exercise 1

The specifications of the low-pass filter with respect to the attenuation are given below :

- Pass-band: $A_3 = 1$ dB
- Stop-band: $A_1 = 30$ dB



The resistor R_s of the voltage source is equal to 600 Ohms.

The topology with 2 parallel capacitors and one series inductor is chosen.

Calculate the L and C components of the Chebyshev low-pass filter by using the results obtained in Serie 8.

Denormalization in frequency and in impedance

Exercise 2

The topology of a passive filter is given in Fig. 1:

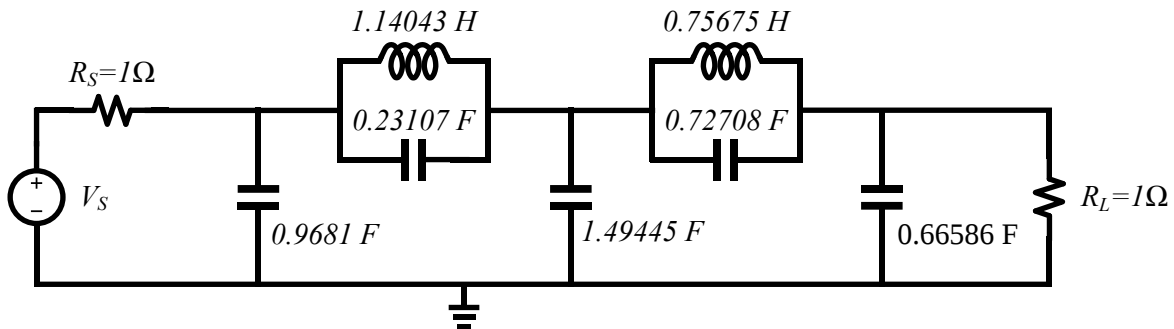


Fig. 1

- What is the type of this filter ? Thanks to justify your answer.
- Determine and calculate the frequencies for which the attenuation is very high.
- It can be shown that the attenuation of the filter of Fig. 1 fulfills the specifications represented in Fig. 2.

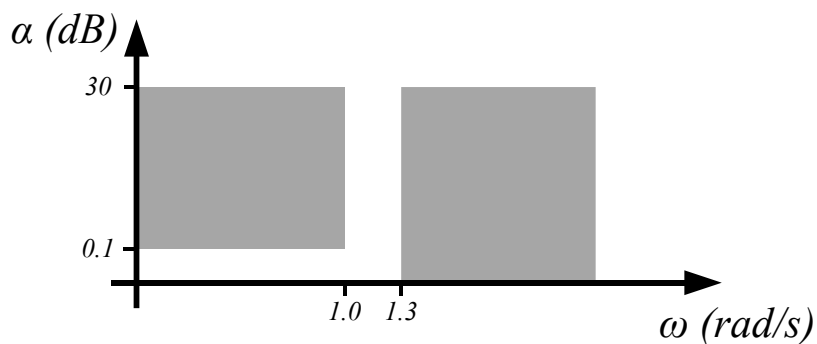


Fig. 2

- Calculate the values of the components of the new filter such that:
 $R_S = 50 \text{ Ohms}$, $R_L = 50 \text{ Ohms}$, cut-off frequency = 20 MHz.
- Determine and calculate the frequencies for which the attenuation is very high.