Assignment

Simulate the single-phase and three-phase bridge DC-AC circuits using two sets of the circuit parameters below, analyze and compare the fundamental component and harmonics in the output line-to-line voltages and input current by the Fourier Analysis.

1) $V_d = 540$ V, $R_{load} = 5\ \Omega$, $L_{load} = 5$ mH, $f_1 = 50$ Hz, $m_a = 0.8$, $m_f = 39$;
2) $V_d = 540$ V, $R_{load} = 5\ \Omega$, $L_{load} = 5$ mH, $f_1 = 50$ Hz, $m_a = 1.2$, $m_f = 44$.

Simulate the frequency converter AC-DC-AC using the three phase bridge diode AC-DC with the input line voltage of 380 Vrms, design the capacitor of the DC link, calculate the power factor on the input AC side.