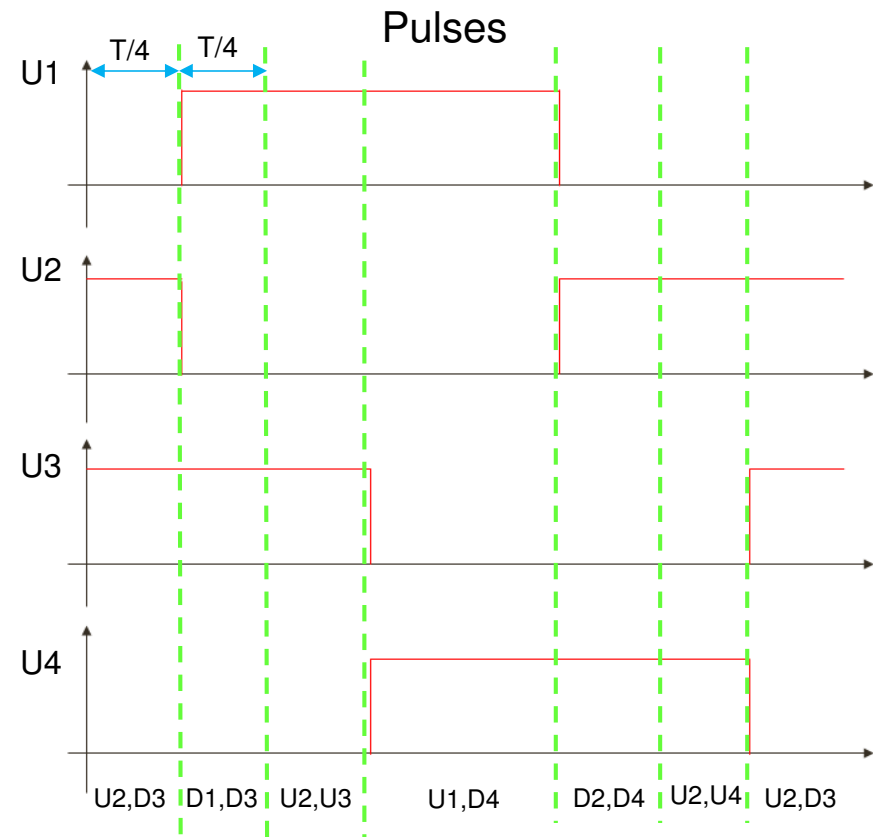
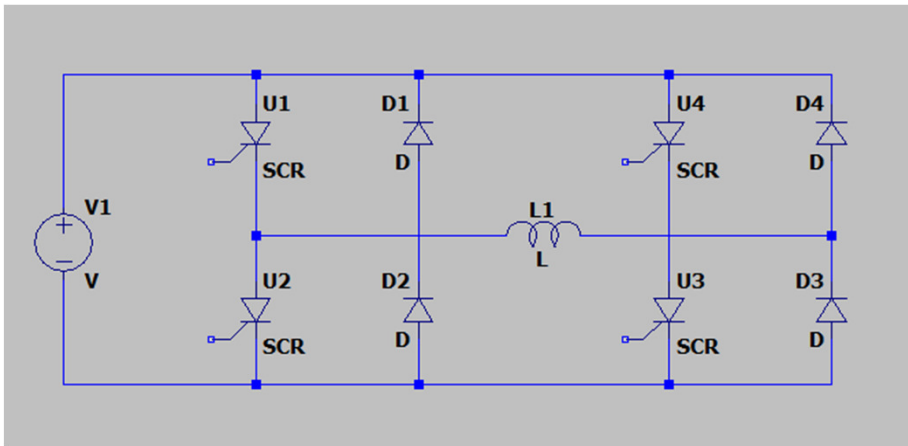

ANALYSIS OF POWER ELECTRONIC CONVERTERS DC/AC

IOAKEIMIDOU PANAGIOTA
PAPADOPOULOS ANASTASIOS
TOUNA PANAGIOTA

Exercise 34

Analyse the operation of a square wave inverter with pure inductive load and pulse width of the output voltage equal to 90° .



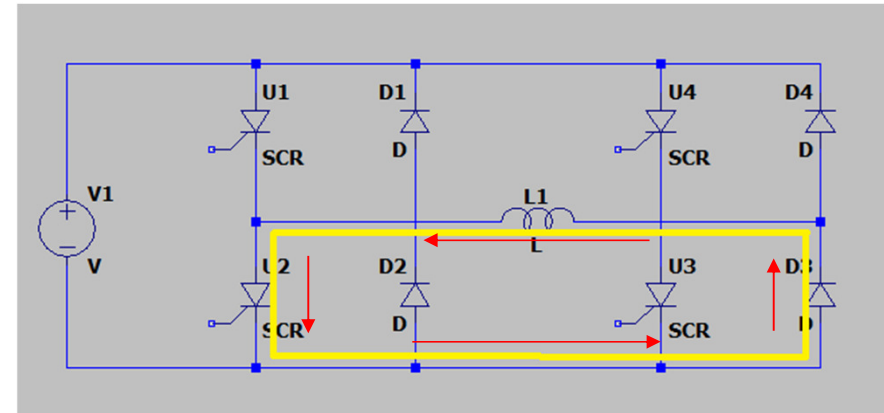
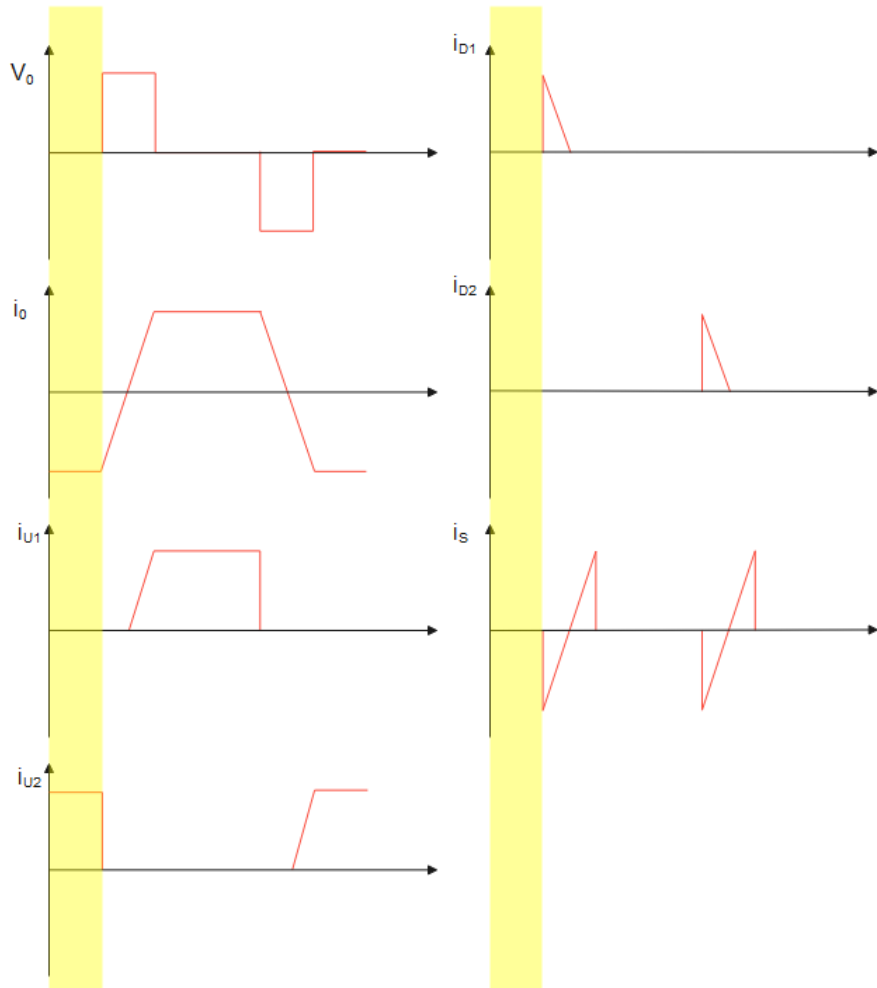
Operating States

State	U_1	U_2	U_3	U_4	V_o	i_o	i_s
1	0	1	1	0	0	ct	0
2	1	0	1	0	V_d	$\frac{di}{dt} > 0$	i_o
3	1	0	0	1	0	ct	0
4	0	1	0	1	$-V_d$	$\frac{di}{dt} < 0$	i_o

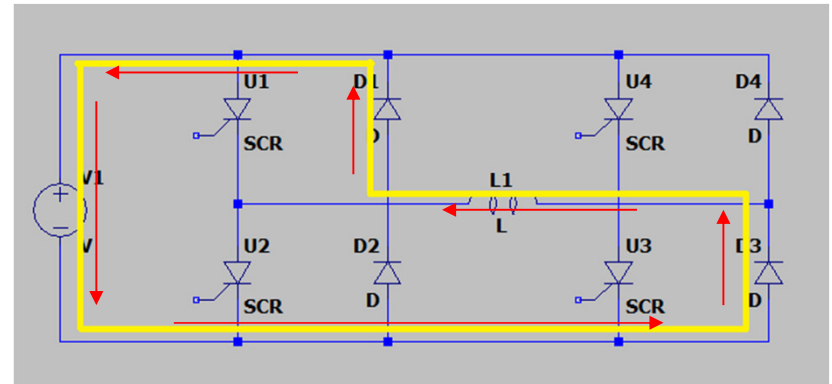
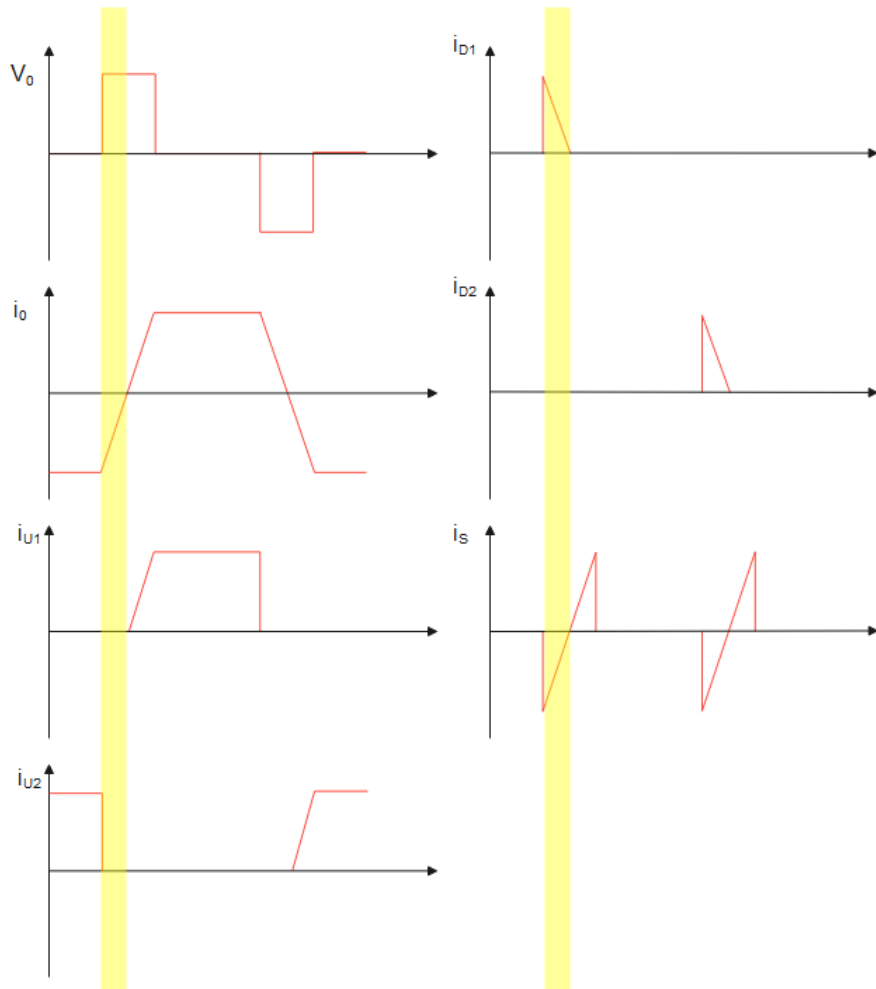
Current Flow

State	$i_o > 0$	$i_o < 0$	Power Flow $i_o > 0$	Power Flow $i_o < 0$
1	U_3, D_2	U_2, D_3	Loop	Loop
2	U_1, U_3	D_1, D_3	Source \Rightarrow Load	Source \Leftarrow Load
3	U_1, D_4	U_4, D_1	Loop	Loop
4	D_2, D_4	U_2, U_4	Source \Leftarrow Load	Source \Rightarrow Load

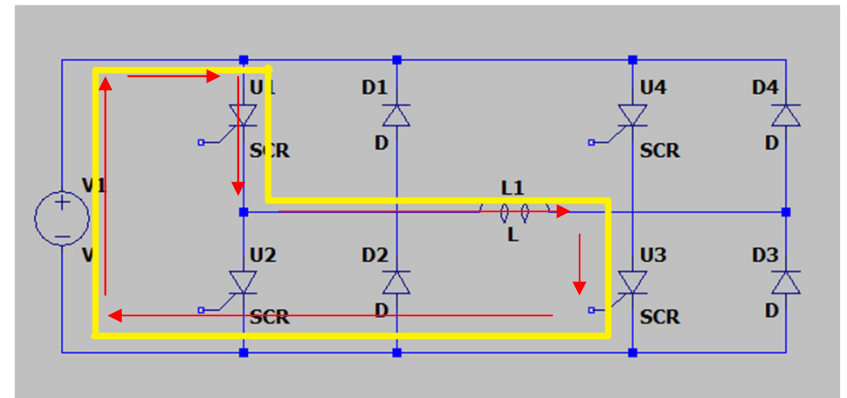
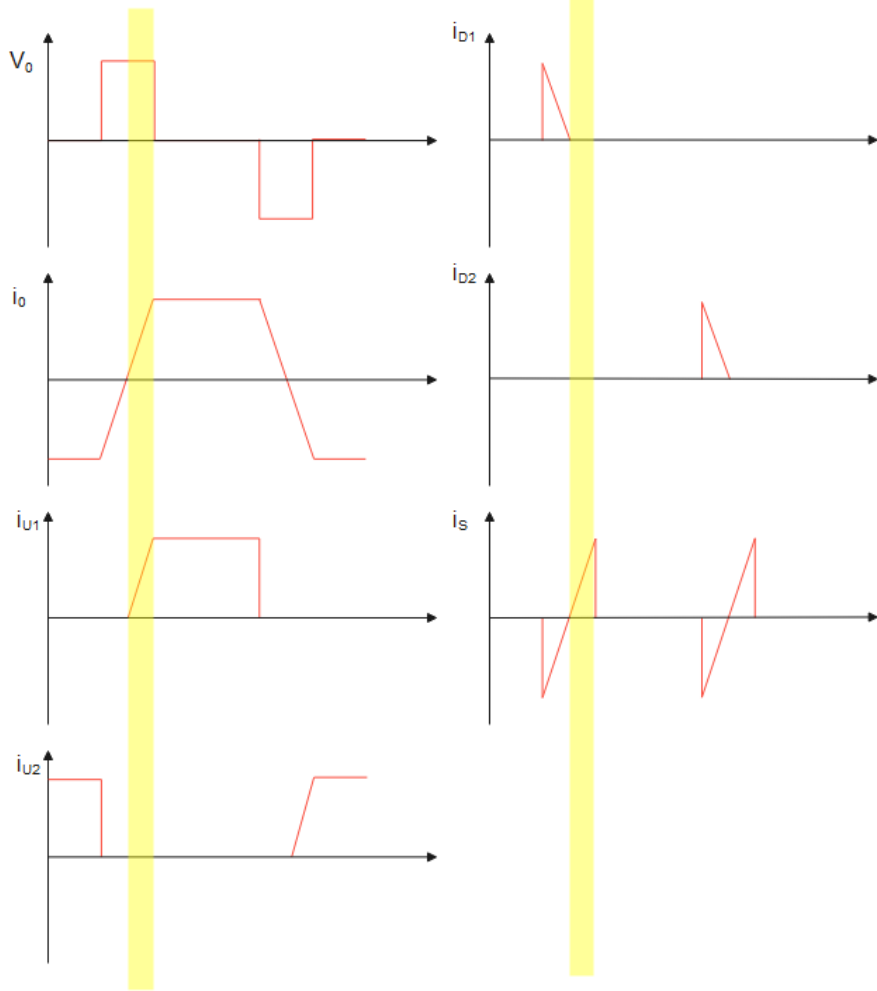
U2,D3



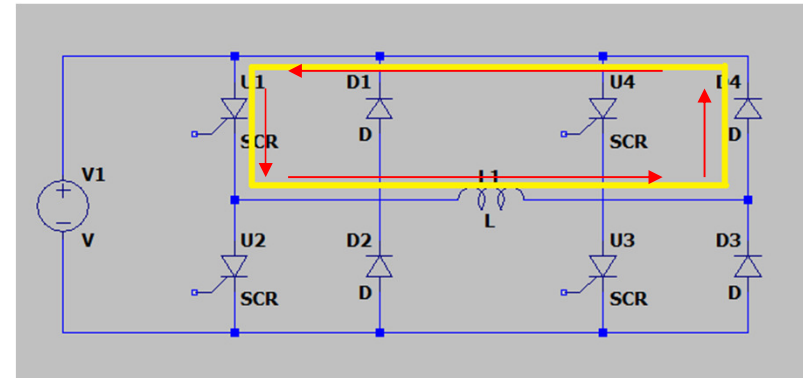
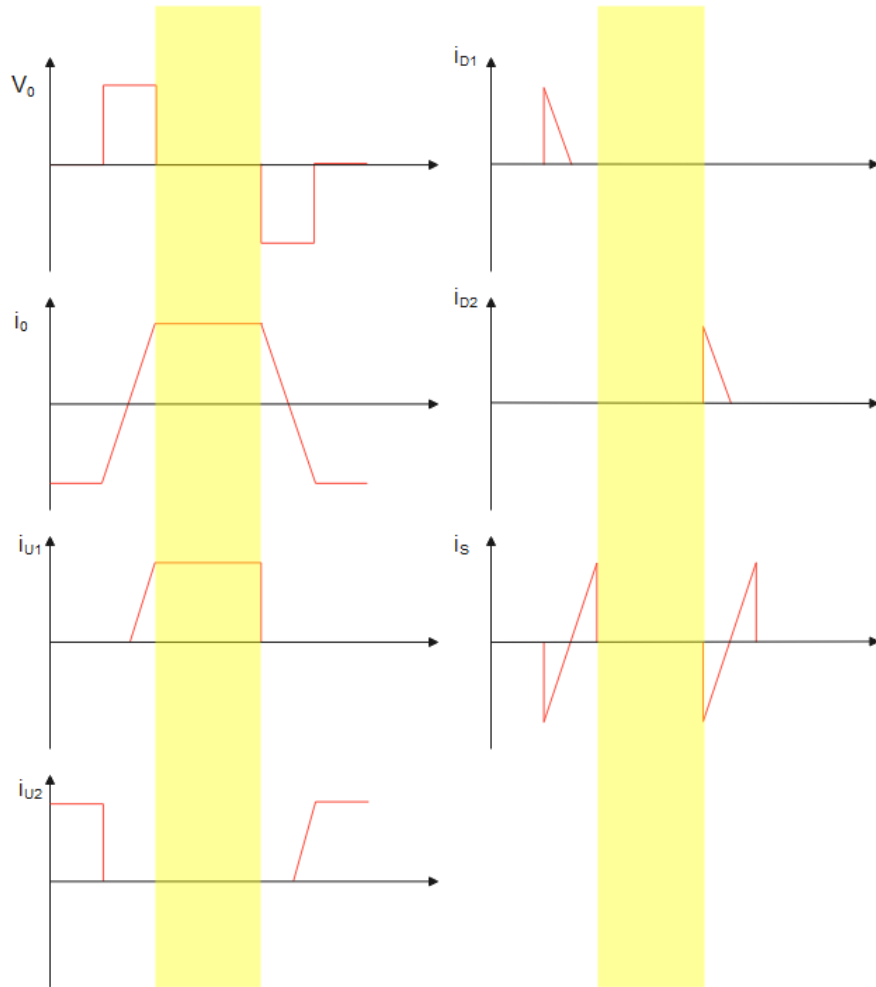
D1,D3



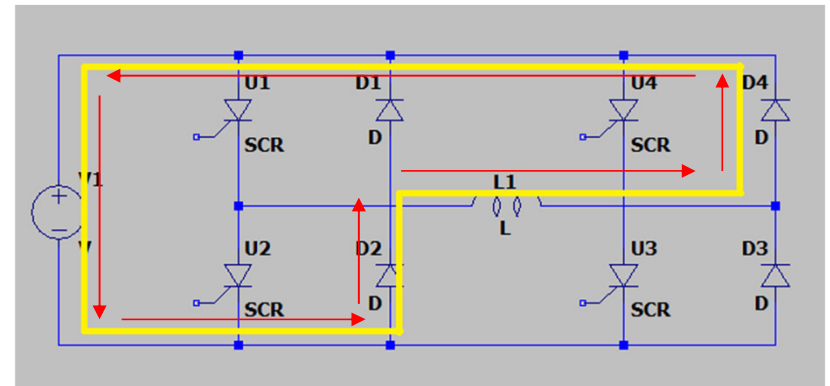
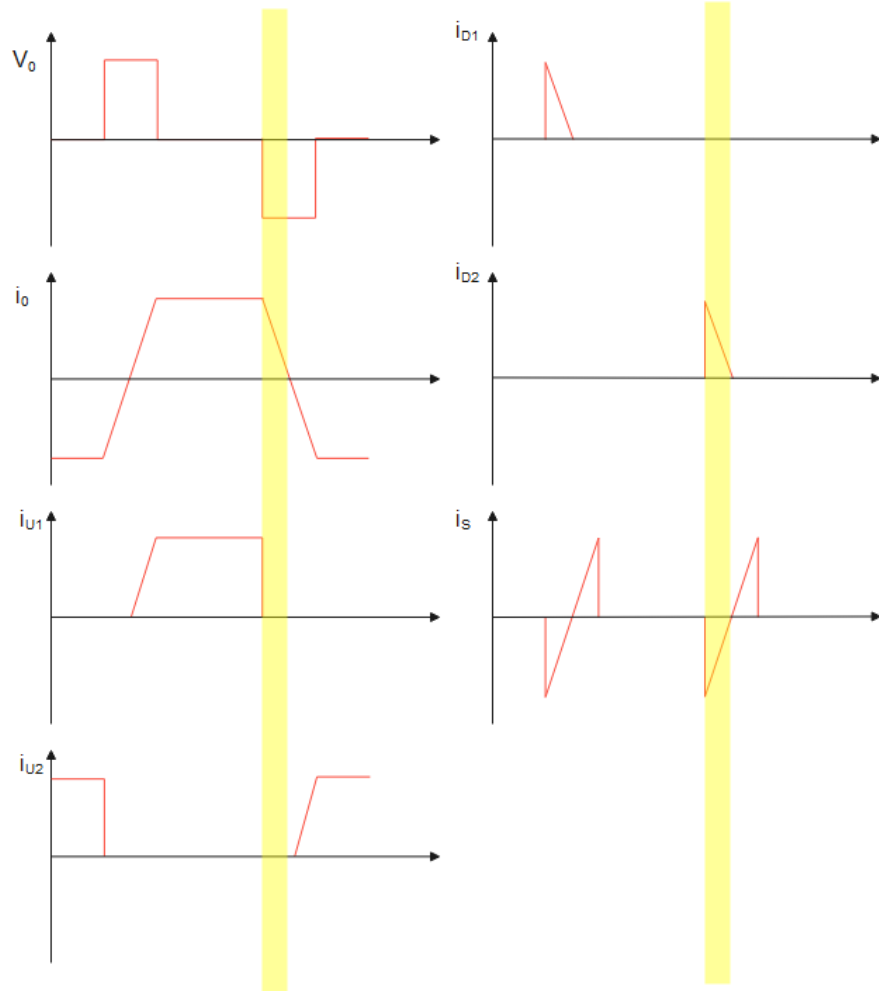
U1, U3



U1,D4



D2,D4



U2,U4

