Calculation Input and Output for different number of panels

String=[4,15] V= 40 V I

V\_DClink=360V

Boost (N=4)

V\_MPP=V\_in=32,6 V

V\_out=V\_DClink/4=90V

Pout=Pin= 300W

4:

Duty Cycle =V\_in/V-out-1=0,63

I\_outputaverage= P\_out/V-out= 300W/90V=3,3A

I\_inputaverage=I\_outputaverage\*(1-D)= 9,11 A

Buck(15)

V\_input=32,1V

P\_input=300W

I\_input= 9,2A (all MPP)

V\_out=P\_out/N=360V/15=24V

V\_out/V\_in=D=0,73

I\_inputaverage=9,2 A

I\_maximunaverage= I\_inputaverage/D=9,2/0,73= 12,6 A

Boost(Aitor)

V=40V

I\_sc=10 A

I\_max = I\_o +1/L\*V\_g\*(D\*T)

I\_o=I\_m+1/L(V\_g-V\_out)((1-D)\*T)

Buck and boost mode