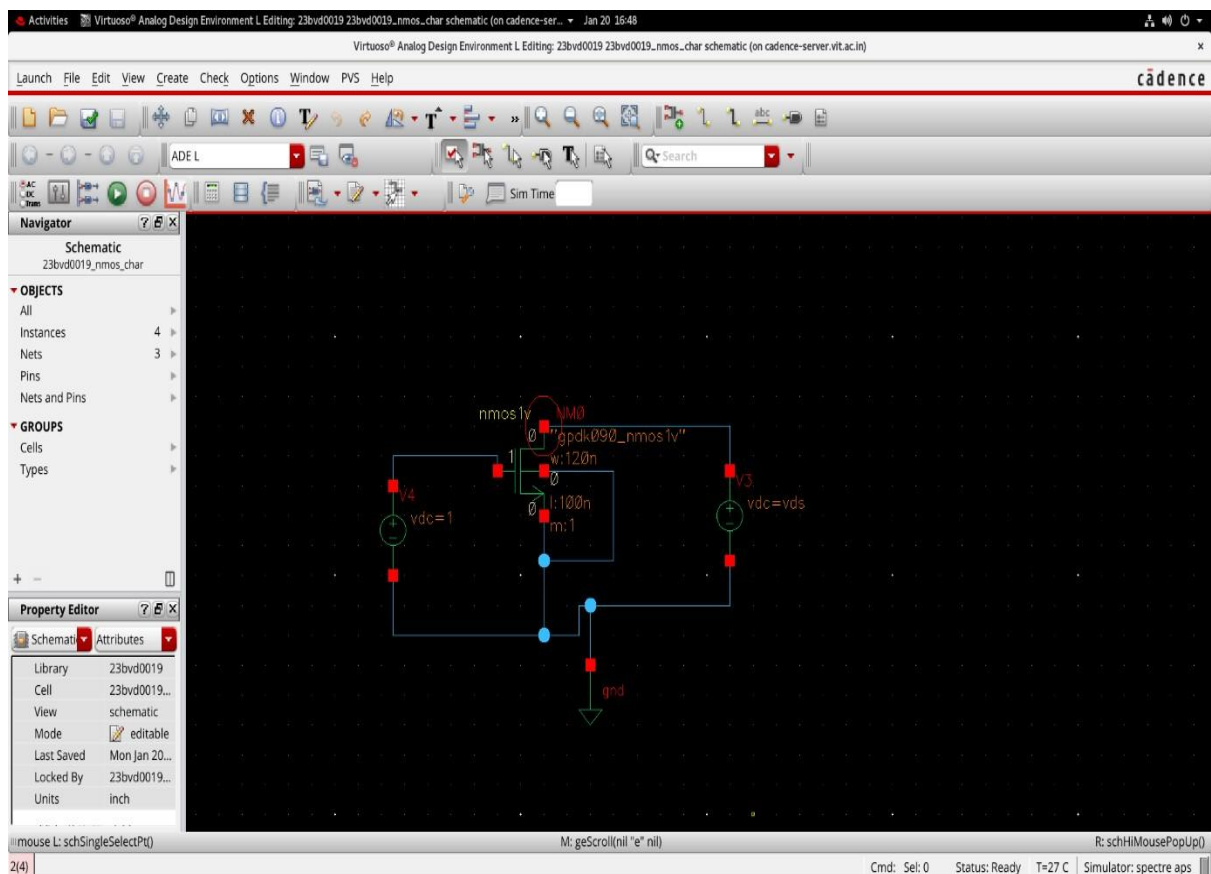


VLSI SYSTEM DESIGN

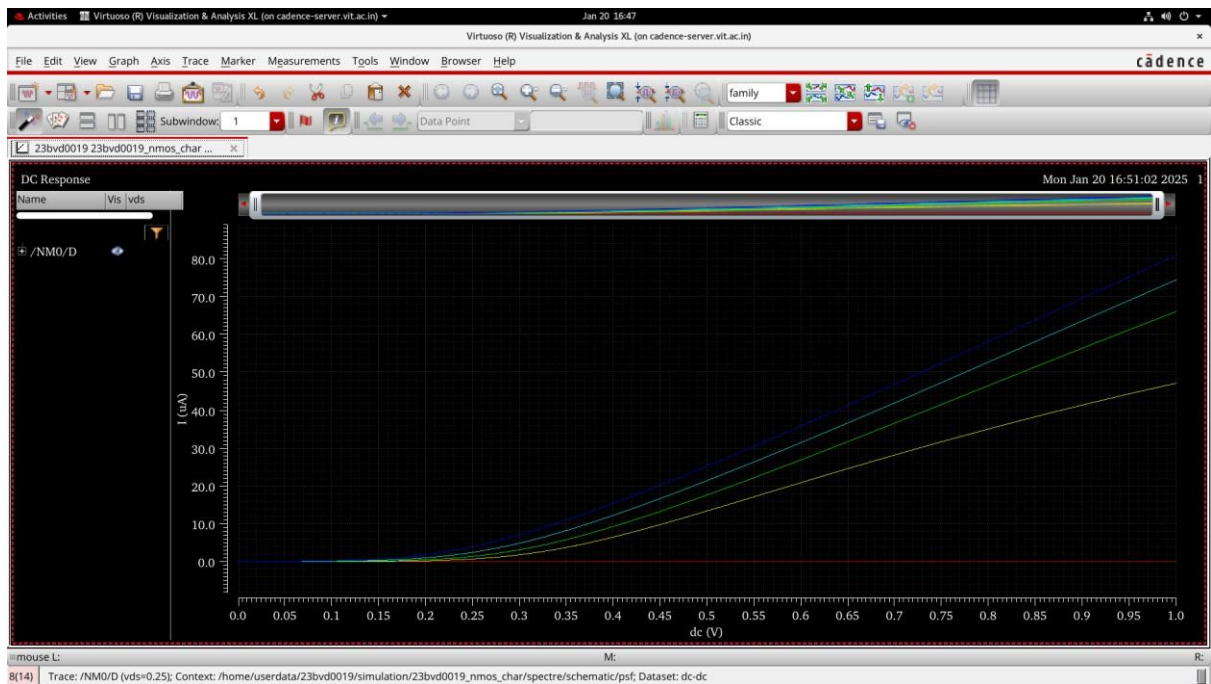
Aim: Plot I-V characteristics for NMOS and PMOS. Determine V_{th} , λ , body bias effect

NMOS CHARACTERISTICS:

1) I_{DS} Vs. V_{GS} (for different values of V_{DS}) Schematic:



Input characteristics:

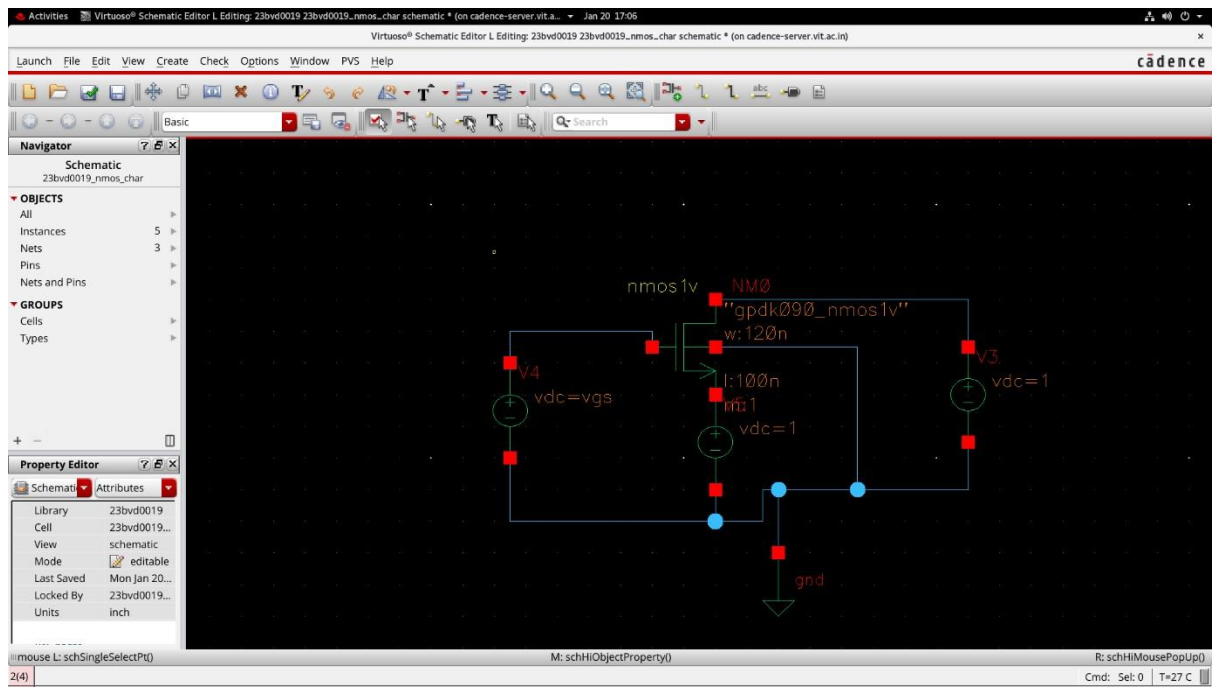


VTH (Threshold values):

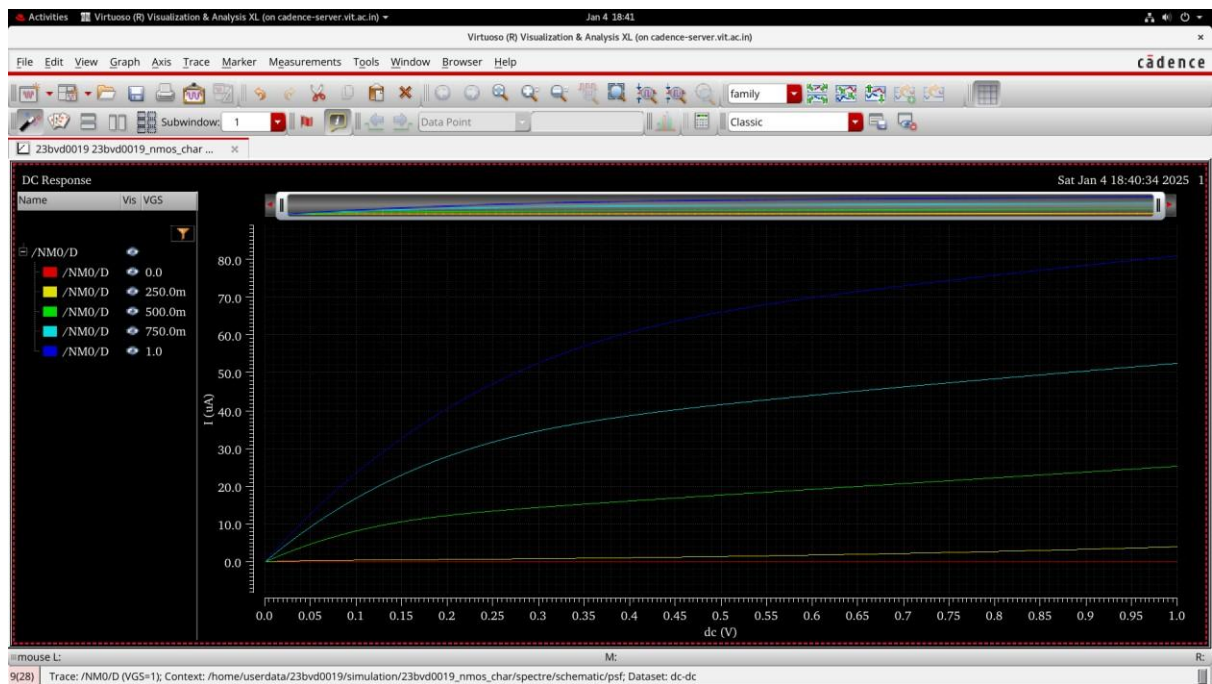
Results Display Window (on cadence-server.vit.ac.in)										
Window Expressions Info Help										
OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")
yfbfeff	vdsat	vth	vgs	vds	vgs	vbs	vds	vgs	isub	ids
-942.306m	396.675m	237.978m	1	0	1	0	0	1	0	0
-942.306m	402.585m	209.012m	750m	250m	1	0	250m	1	6.35715z	47.2206u
-942.306m	408.101m	180.046m	500m	500m	1	0	500m	1	94.5834z	66.1546u
-942.306m	413.249m	151.081m	250m	750m	1	0	750m	1	5.19853f	74.5632u
-942.306m	418.054m	122.115m	0	1	1	0	1	1	17.8626p	81.0427u

2)IDS Vs VDS (for different values of VGS)

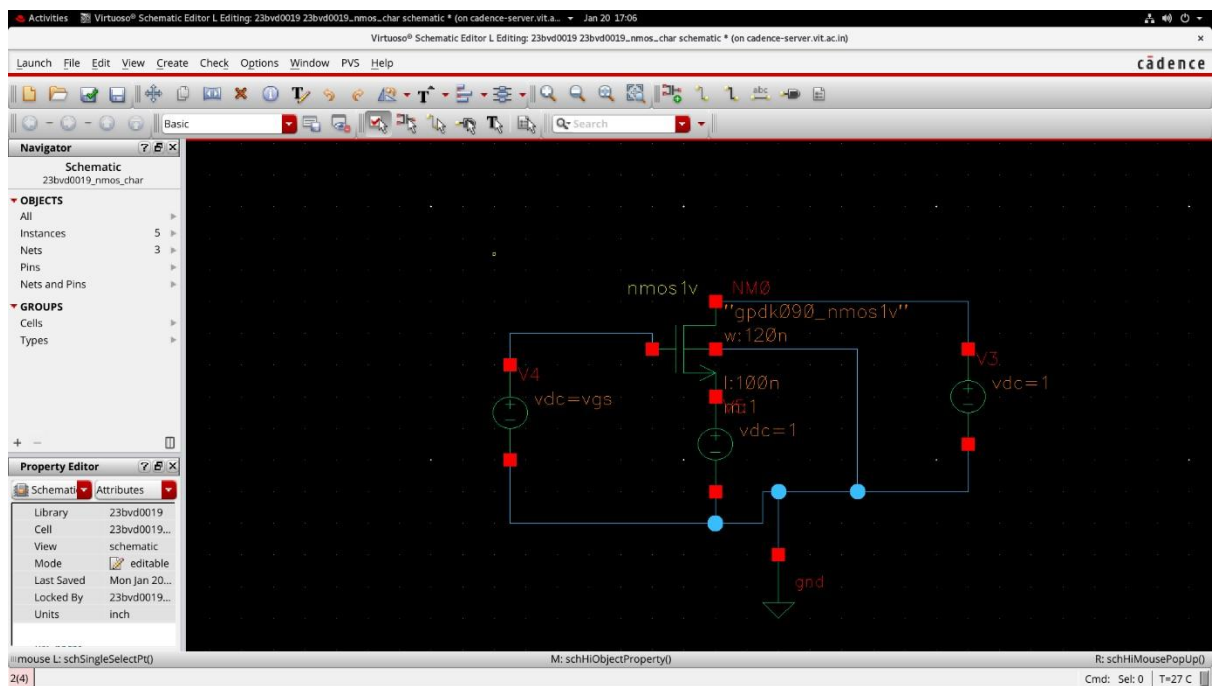
Schematic:



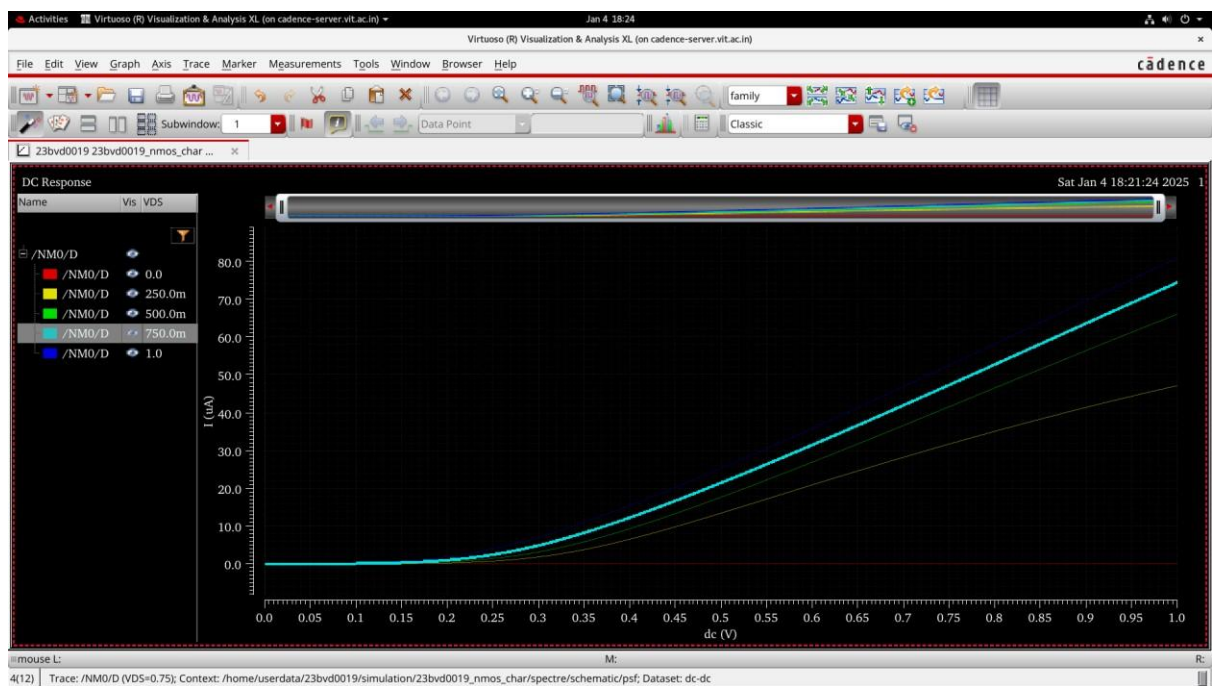
Output Characteristics:



3)IDS VS VGS (for different VSB values) Schematic:



Waveform:



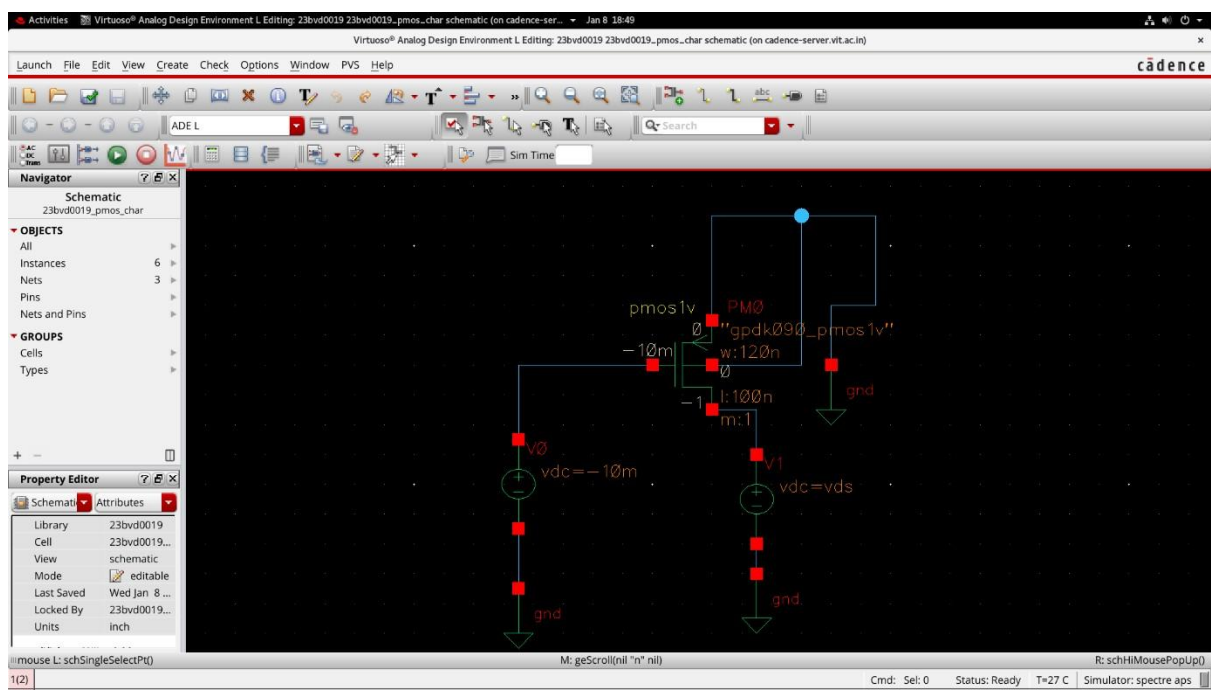
Vth Values:

Results Display Window (on cadence-server.vit.ac.in)											
cadence											
??	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")	OP("/NM0" "??")
gm	vfbeff	vdsat	vth	vgd	vdb	vgb	vbs	vds	vgs	isub	
j	113.124u	-942.306m	418.054m	122.115m	0	1	1	0	1	17.8	
j	108.754u	-942.27m	328.385m	164.711m	0	1	1	-250m	750m	133.2	
j	88.753u	-942.244m	211.26m	211.921m	0	1	1	-500m	500m	37.6	
tu	5.48849u	-942.226m	56.6872m	264.311m	0	1	1	-750m	250m	589.5	
in	0	-942.217m	45.0552m	322.228m	0	1	1	-1	0	0	

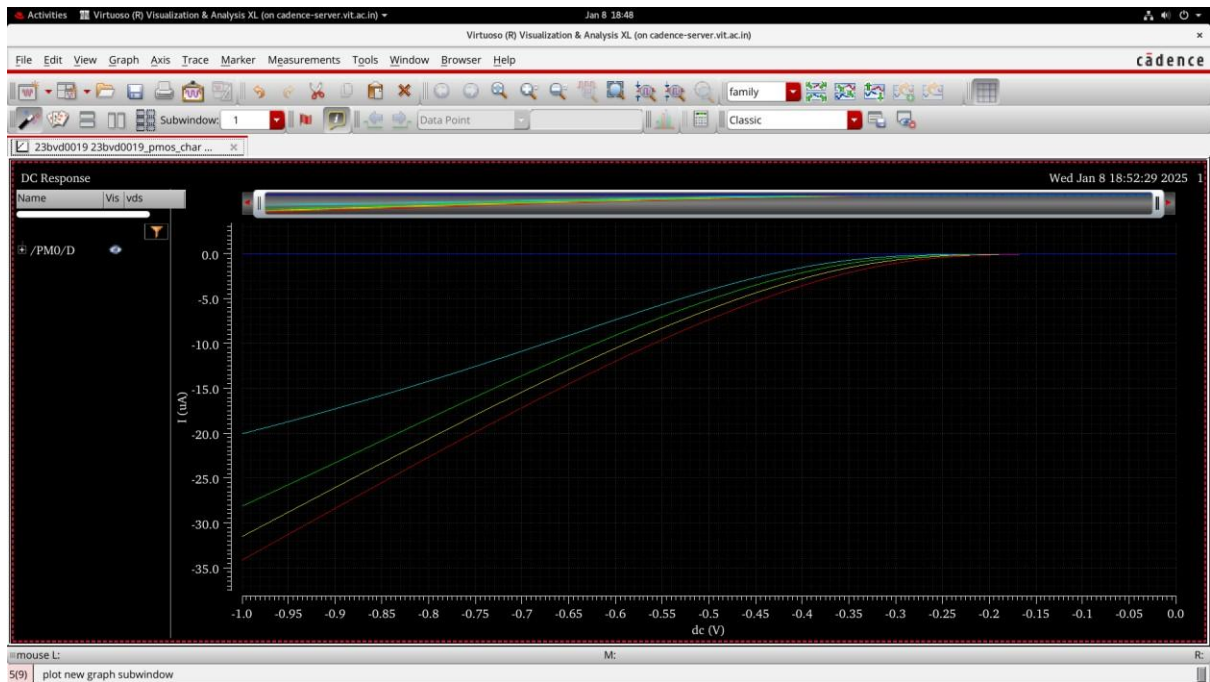
PMOS CHARACTERISTICS:

1)IDS Vs. VGS (for different values of VDS)

Schematic:



Input Characteristics:

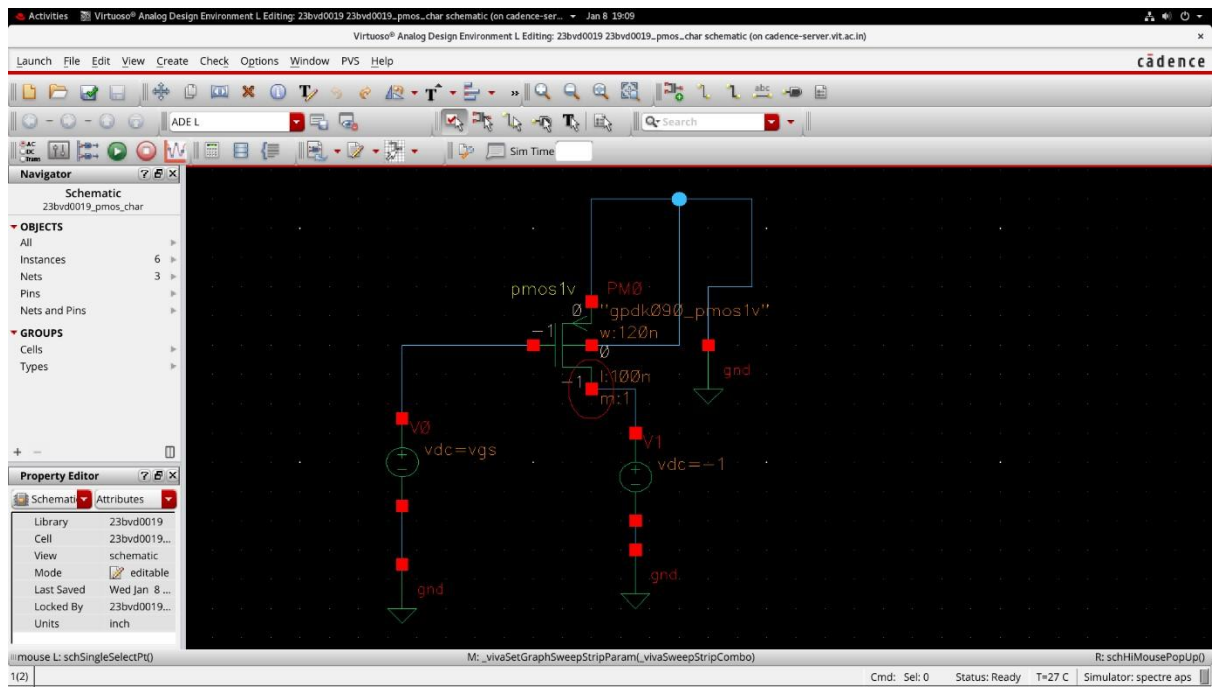


Vth Values:

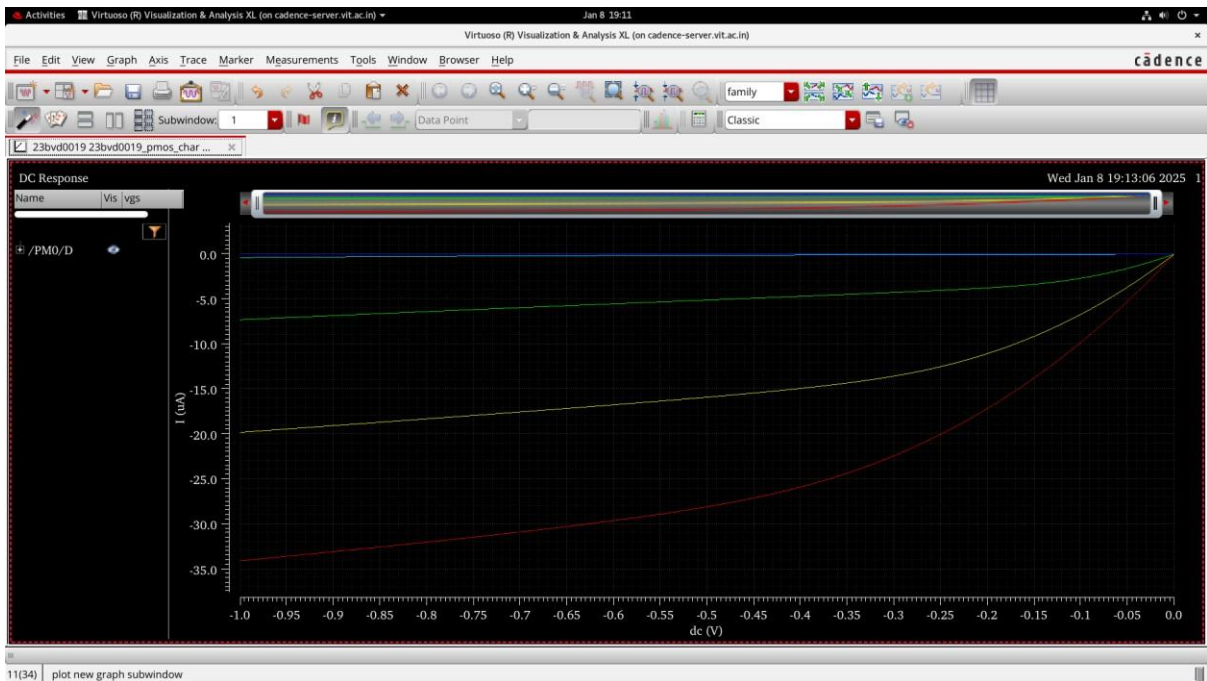
	vth	vgd	vdb	vgb	vbs	vds	vgs	isub	ids	trise
839m	-231.841m	990m	-1	-10m	0	-1	-10m	-66.7296a	-194.462p	NaN
859m	-250.519m	740m	-750m	-10m	0	-750m	-10m	-1.27483a	-82.0075p	NaN
949m	-269.196m	490m	-500m	-10m	0	-500m	-10m	-1.00415z	-34.2131p	NaN
076m	-287.874m	240m	-250m	-10m	0	-250m	-10m	-2.03496e-	-14.0275p	NaN
226m	-306.552m	-10m	0	-10m	0	0	-10m	-0	-0	NaN

2)IDS Vs VDS (for different values of VGS)

Schematic:

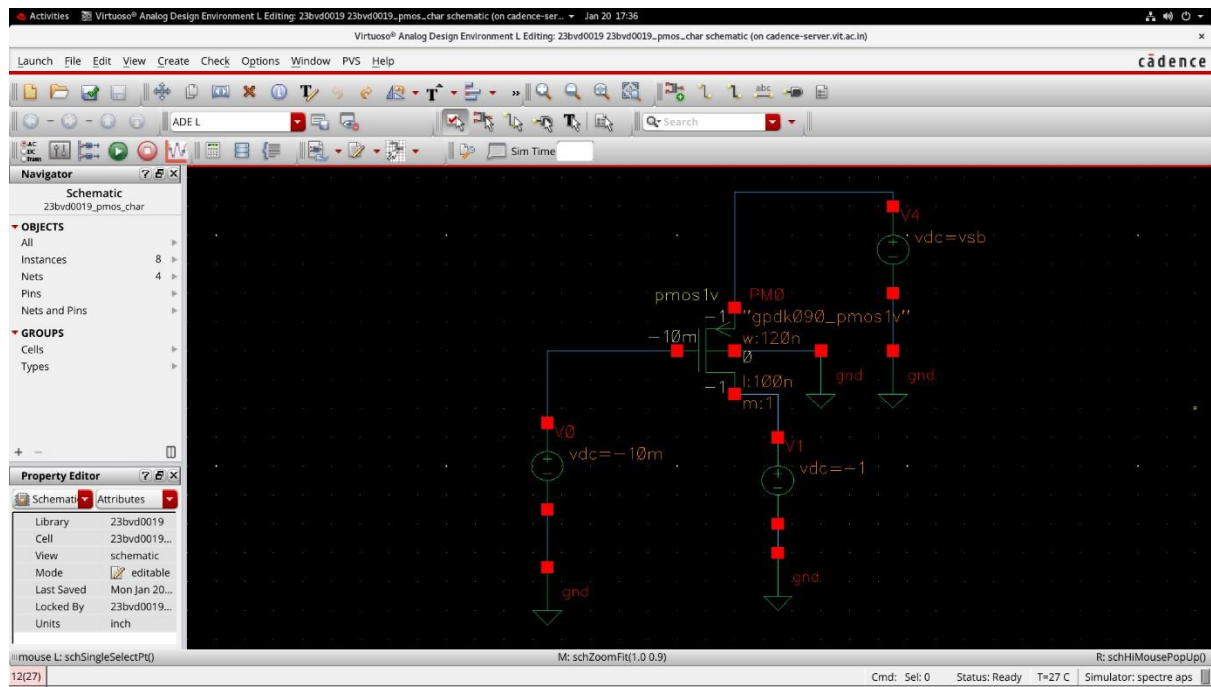


Output Characteristics:

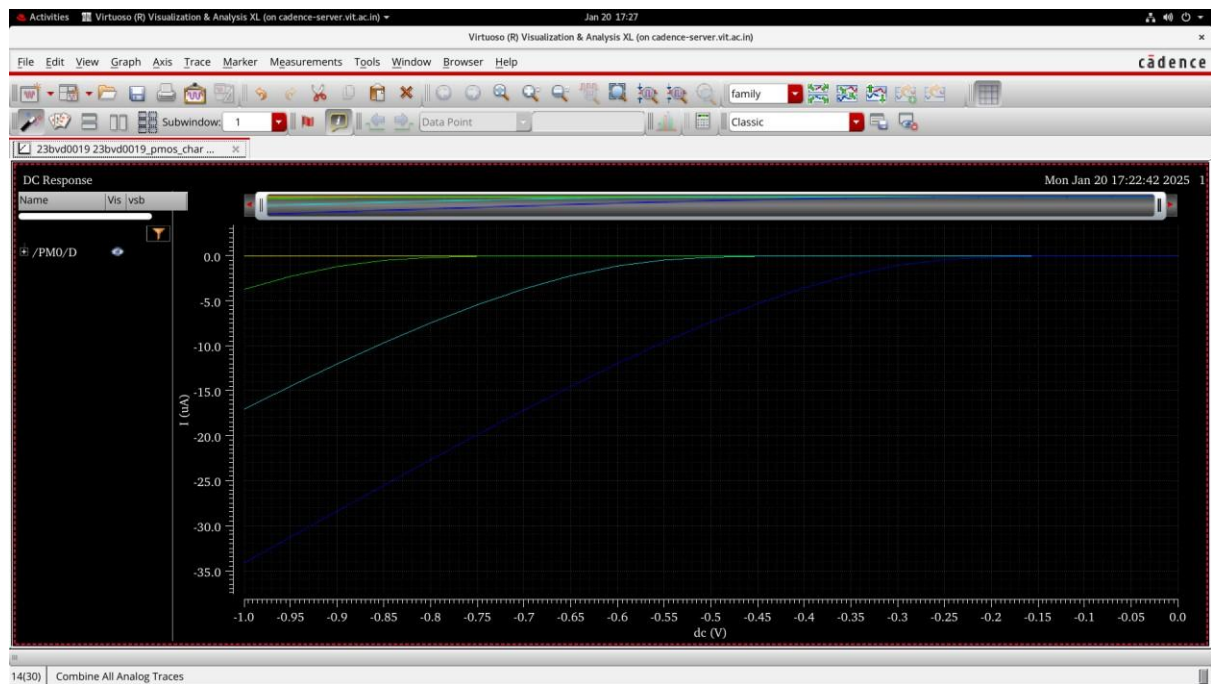


Value of Lambda

3)IDS VS VGS (for different VSB values)



Waveform:



Values of Vth

Results Display Window (on cadence-server.vlt.ac.in)										
Jan 6 18:56										
Results Display Window (on cadence-server.vlt.ac.in)										
cadence										
0" "??"	OP("/PM0" "??"	OP("/PM0" "??"	OP("/PM0" "??"	OP("/PM0" "??"	OP("/PM0" "??"	OP("/PM0" "??"	OP("/PM0" "??"	OP("/PM0" "??"	OP("/PM0" "??"	OP("/PM0" "??"
vth	vgd	vdb	vgb	vbs	vds	vgs	isub	ids	trise	
839m	-231.841m	990m	-1	-10m	0	-1	-66.7296a	-194.462p	NaN	
859m	-250.519m	740m	-750m	-10m	0	-750m	-1.27483a	-82.0075p	NaN	
949m	-269.196m	490m	-500m	-10m	0	-500m	-1.00415z	-34.2131p	NaN	
076m	-287.874m	240m	-250m	-10m	0	-250m	-2.03496e-	-14.0275p	NaN	
226m	-306.552m	-10m	0	-10m	0	0	-0	-0	NaN	

11