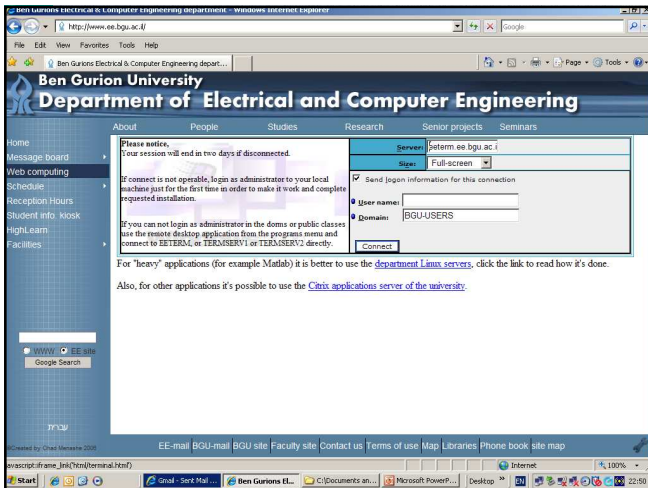


OrCAD & PSPICE



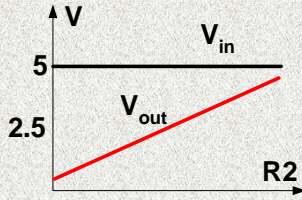
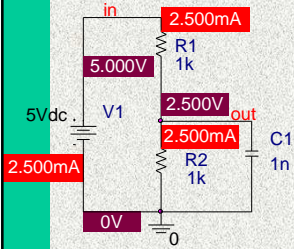
Simulation Types

- Bias point
 - DC sweep – sweep of the parameter
 - Time domain (transient)
 - Frequency domain (AC/Noise)
- Additional (multi-run analyses)
- Parametric
 - Temperature

Simulation Types (DC)

Bias-point

DC - sweep



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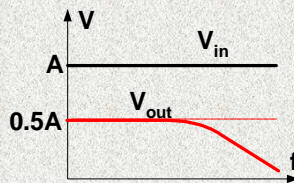
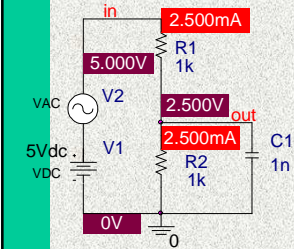
3/31/2009

Simulation Types (AC)

Bias-point

Small signal ($V_{in} = A \sin(2\pi ft)$)

$A > 0$



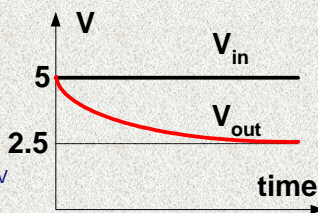
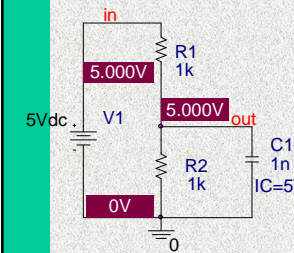
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Simulation Types (Transient)

Bias-point

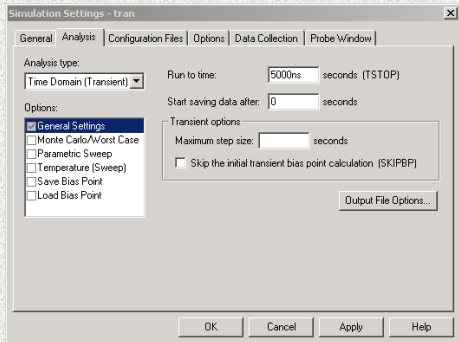
Transient



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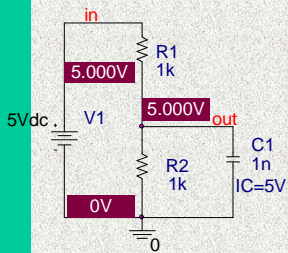
Transient (Time Domain)



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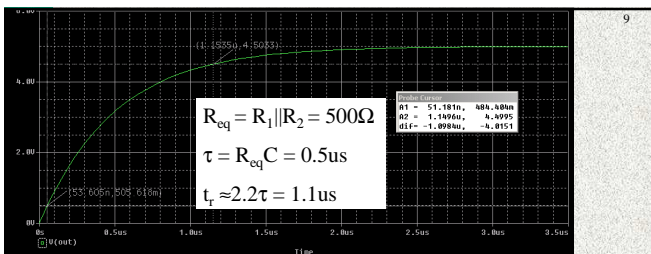
Initial Conditions



- IC=5V
- IC=0V
- IC=

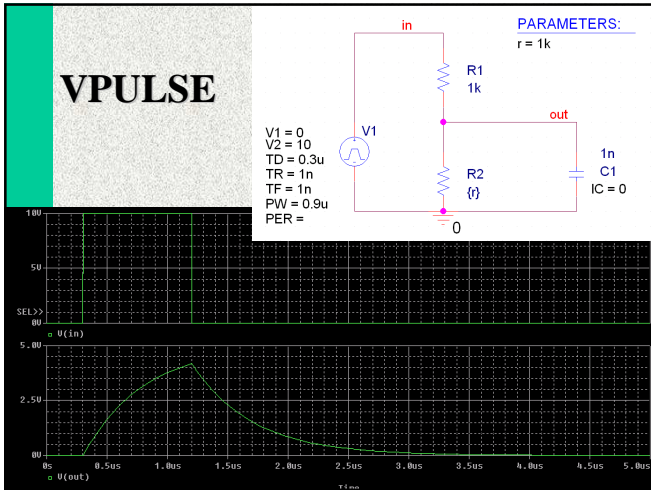
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Dr. Simon

9



Transfer of Results

- Window -> copy to clipboard permits to copy the results to another program (Word, PowerPoint ets.)
- Table of results in ASCII-codes: copy of corresponding legend

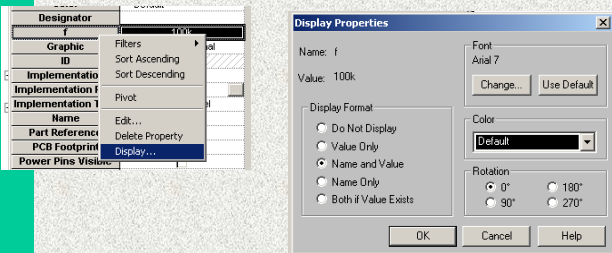
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RC-filter (Example 2)

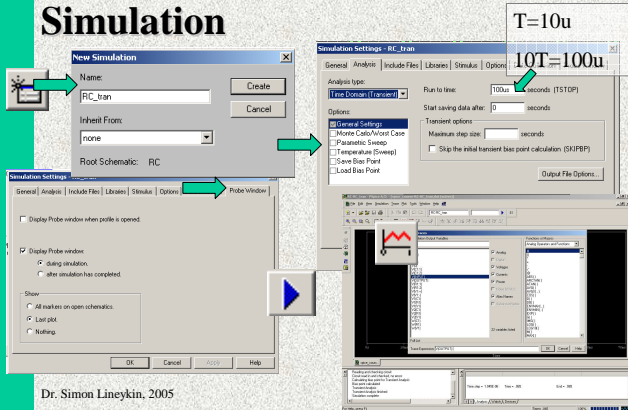
- New schematics (name)
- New page (name)
- Save
- Make root
- Placing parts
- New simulation profile

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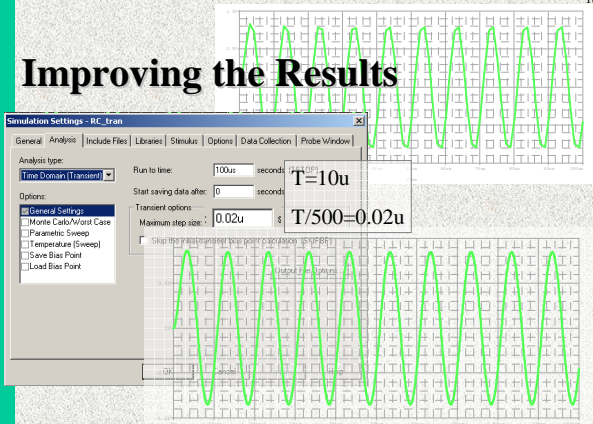
Display Name and Value

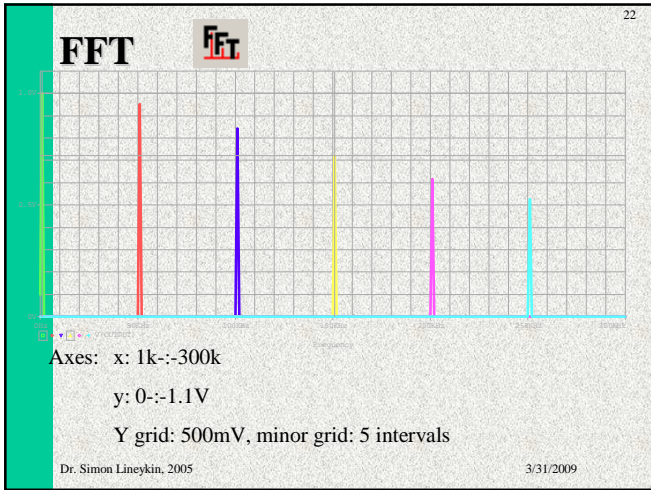


Sine Wave Response by Transient Simulation



Improving the Results





Performance Analysis

23

PARAMETERS:
f = 100k
VOVF = 0
VAMPL = 1
FREQ = {f}

Simulation Settings - AC

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AC Sweep



24

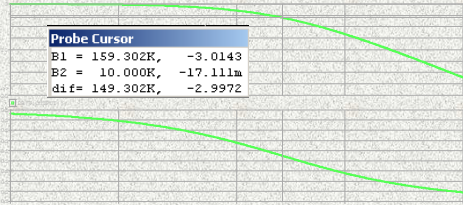
PARAMETERS:
f = 100k
VOVF = 0
VAMPL = 1
FREQ = {f}

Simulation Settings - RC_AC

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AC Sweep: Frequency Plots

1. Plot -> Add plot to window
2. Add trace -> DB(V(output)) 
3. Click lower plot -> add trace -> P(V(output)) 




Main Parts:

- Ground: 0, SOURCE.OLB, (from the PSpice library) 

- Sources

Transient	AC Sweep
VDC, VSIN, VEXP, VPULSE, IDC, IEXP, IPULSE, ISIN	VAC IAC

- Other 

Dependent Sources

Part name	Property	Description
E	GAIN	gain
F		gain
G		transconductance
H		transresistance
EPOLY, FPOLY, GPOLY, HPOLY	COEFF	polynomial coefficient

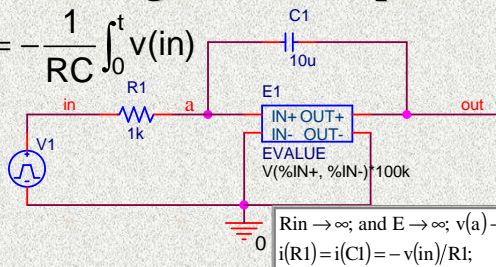
ABM: ABM, ABM/I, ABM2, ABM2/I ets..

Function Depicted by Table: ETABLE, GTABLE, etc.

Miller's Integrator (Example 6)

$$v(\text{out}) = -\frac{1}{RC} \int_0^t v(\text{in})$$

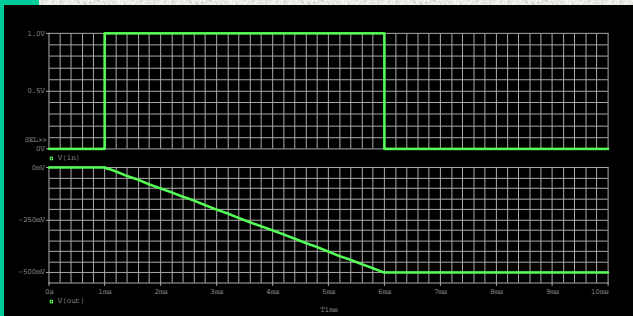
V1 = 0
 V2 = 1
 TD = 1m
 TR = 1u
 TF = 1u
 PW = 5m
 PER =



$R_{in} \rightarrow \infty$; and $E \rightarrow \infty$; $v(a) \rightarrow 0$
 $i(R1) = i(C1) = -v(\text{in})/R1$;
 $v(\text{out}) = v(C1) = \frac{1}{C1} \int_0^t i(R1) dt$;
 $v(\text{out}) = -\frac{1}{R1C1} \int_0^t v(\text{in}) dt$;

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Results



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