

UNIVERSIDADE FEDERAL DA PARAÍBA

INTRODUÇÃO À MICROELETRÔNICA

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## Atividade 3

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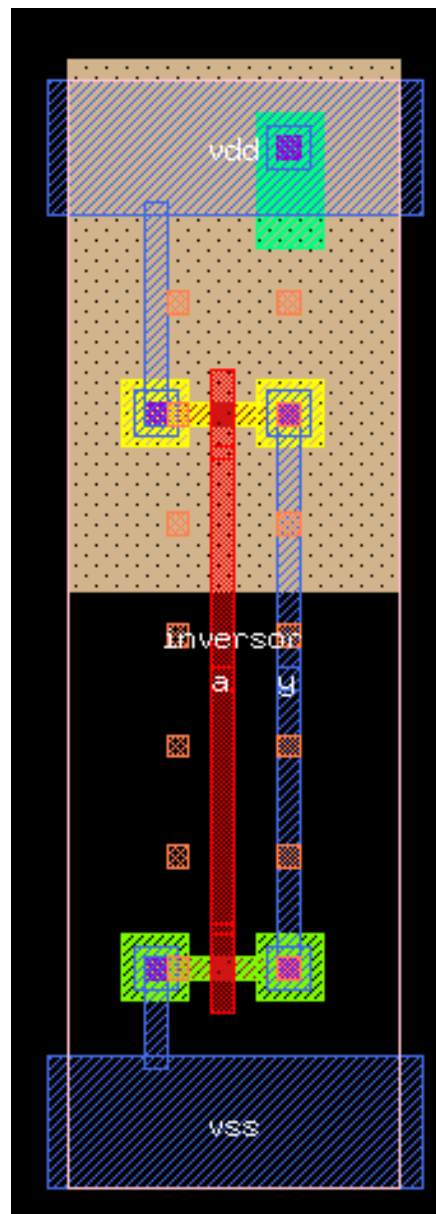
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*Aluno:*  
João Wallace Lucena Lins  
20180027213

8 de outubro de 2023

## 1 Transistor unitário (1p/1n)

Modelo no Graal:



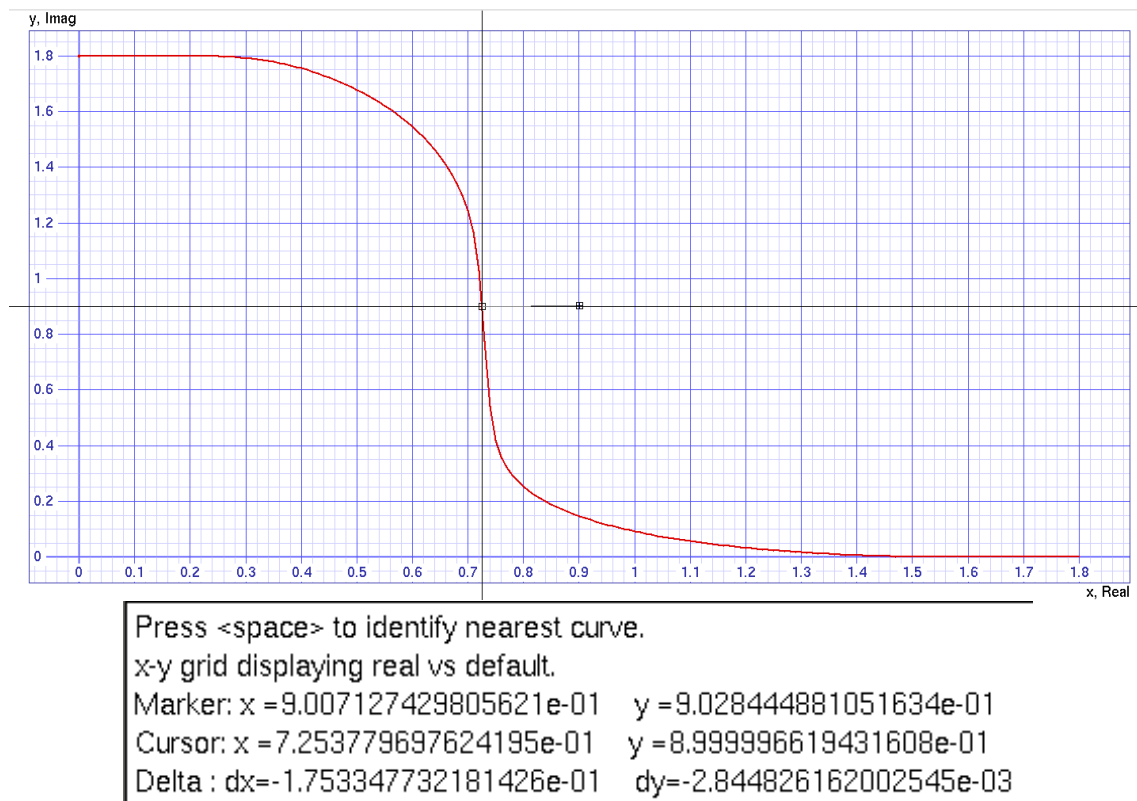
### Atividade 3

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Tensão a ser utilizada:

$$V_{dd} = 1,3 + 0,5 = 1,8 \text{ V}$$

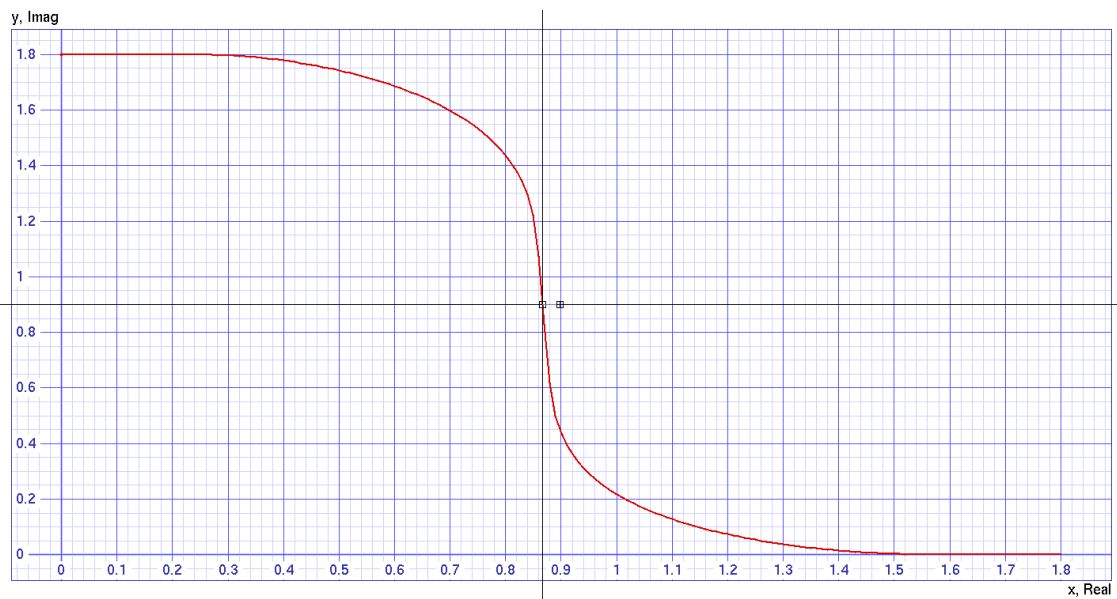
Comportamento DC:



Com um  $\Delta_x \approx 0,175$ , obtemos um erro de aproximadamente 20%.

## 2 Transistor 2p/1n

Comportamento DC:



Press <space> to identify nearest curve.

x-y grid displaying real vs default.

Marker: x =8.978617710583160e-01 y =8.999999761135546e-01

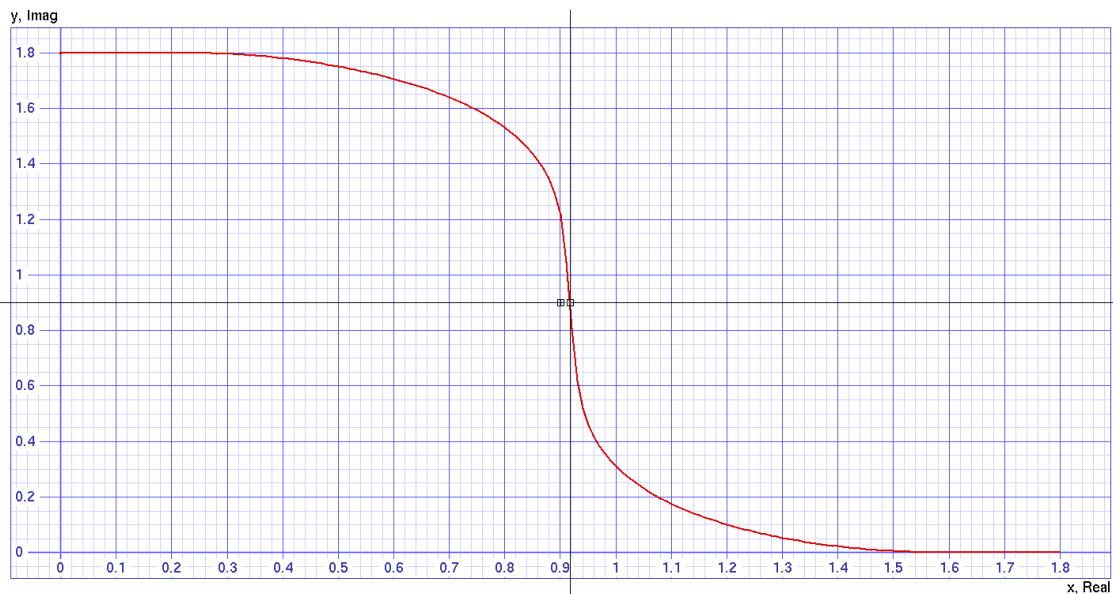
Cursor: x =8.665010799136075e-01 y =8.999999761135546e-01

Delta : dx=-3.136069114470852e-02 dy=0.0000000000000000e+00

Com um  $\Delta_x \approx 0,0314$ , obtemos um erro de aproximadamente 3,5%

### 3 Transistor 5p/2n

Comportamento DC:



Press <space> to identify nearest curve.

x-y grid displaying real vs default.

Marker: x = 9.007127429805621e-01 y = 9.000001514633357e-01

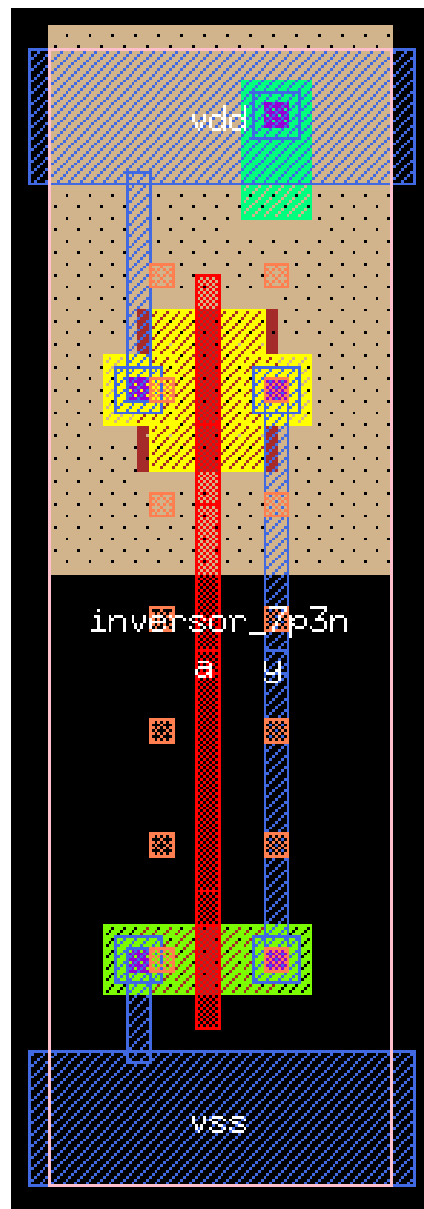
Cursor: x = 9.178185745140395e-01 y = 9.000001514633357e-01

Delta : dx = 1.710583153347733e-02 dy = 0.000000000000000e+00

Com um  $\Delta_x \approx 0,0171$ , obtemos um erro de aproximadamente 1,9%

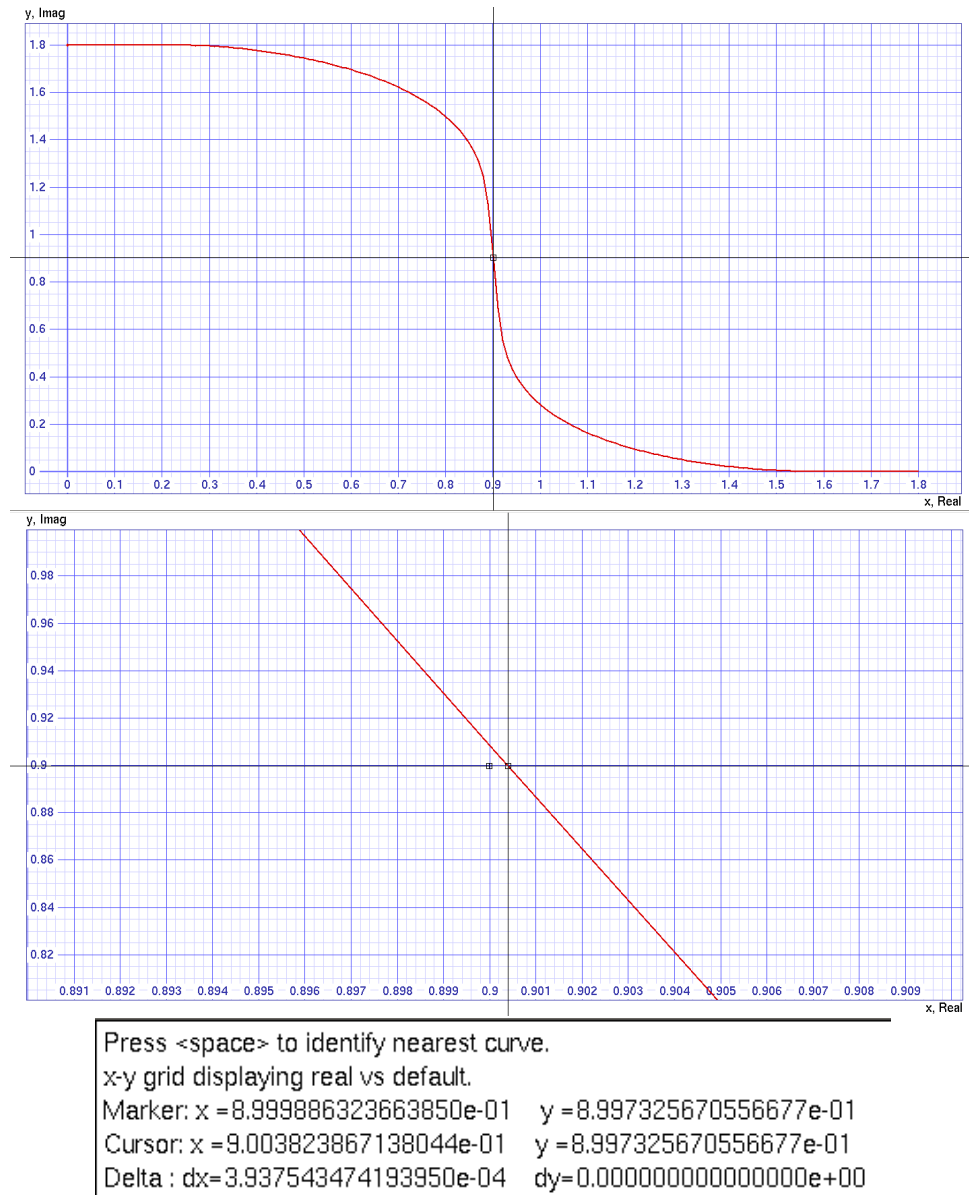
## 4 Transistor 7p/3n

Modelo no Graal:



## Atividade 3

### Comportamento DC:



Com um  $\Delta_x \approx 0,000394$ , obtemos um erro de aproximadamente 0,044%, menor que os 0,1% pedidos!