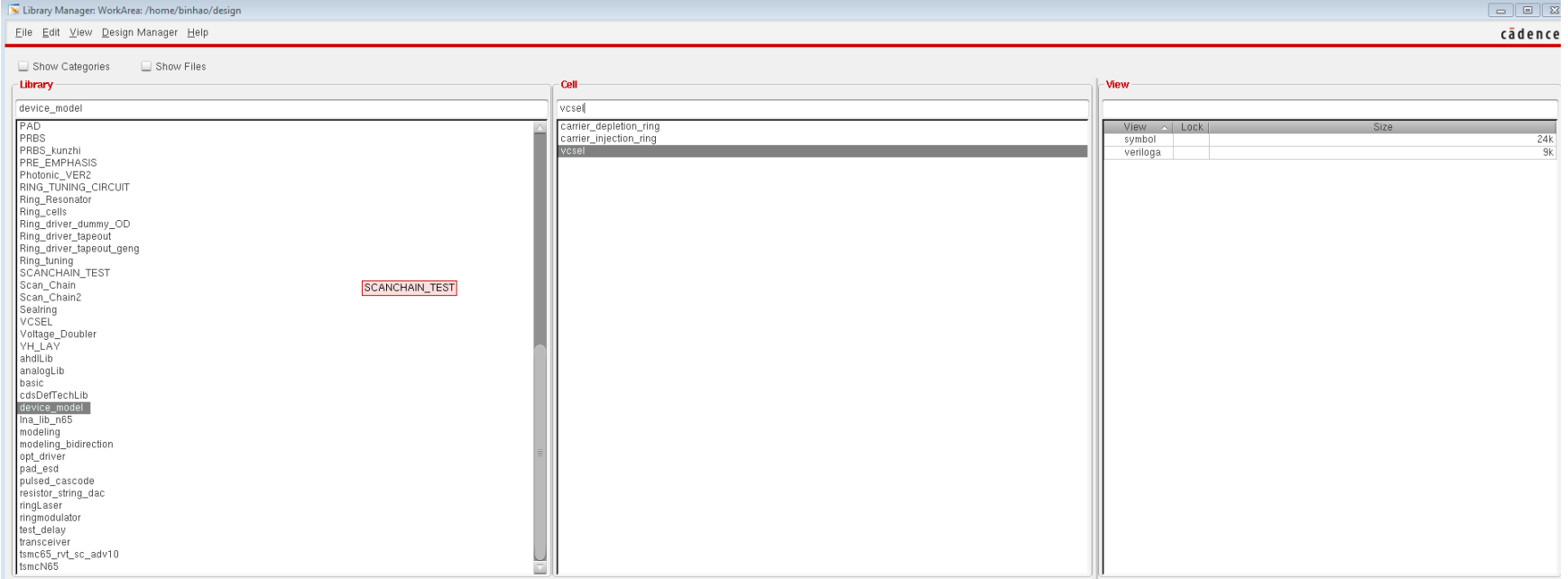


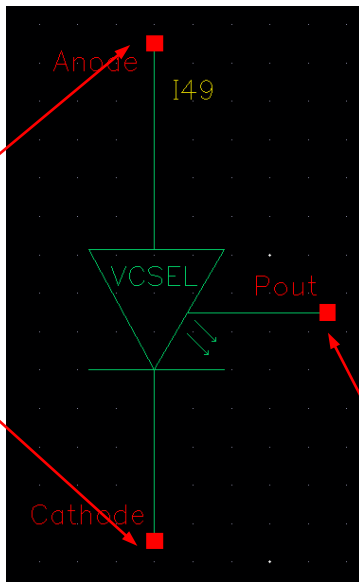
# Verilog-A Models

- The model files are located at  
/homes/faculty/shared/ECEN689\_605
- Upload models to your Cadence library
- Add models in schematics like instances



# VCSEL Model

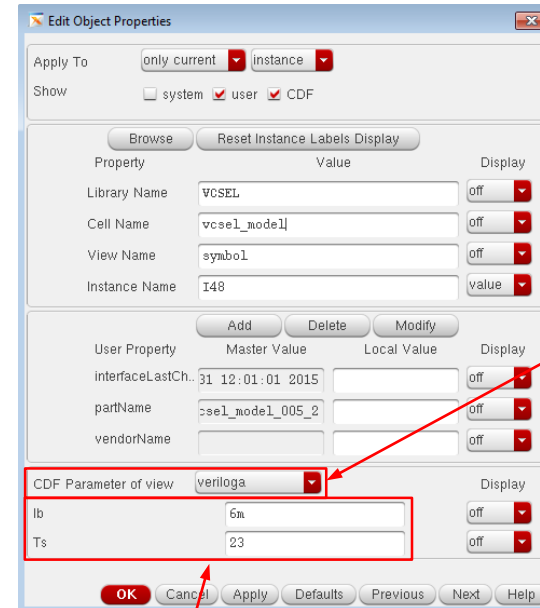
- Verilog-A model symbol



Electrical inputs  
(note: the VCSEL should be forward biased)

Select the symbol in schematic window and press "Q"

Optical output  
(select voltage to get the output)

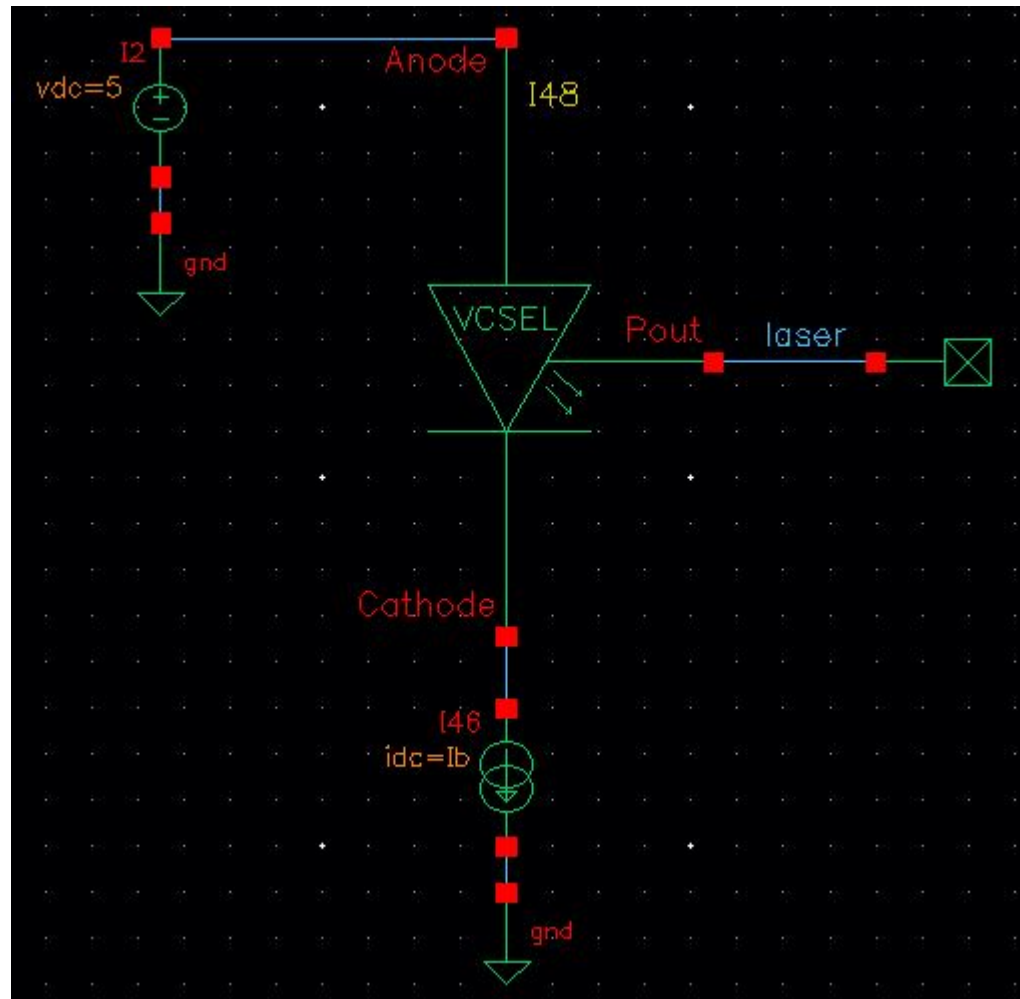


Select "veriloga" from the pull-down list

Model parameters (bias current ( $I_b$ ) and ambient temperature ( $T_s$ )) can be edited by users.  $I_b$  should be the same as your driver bias current.

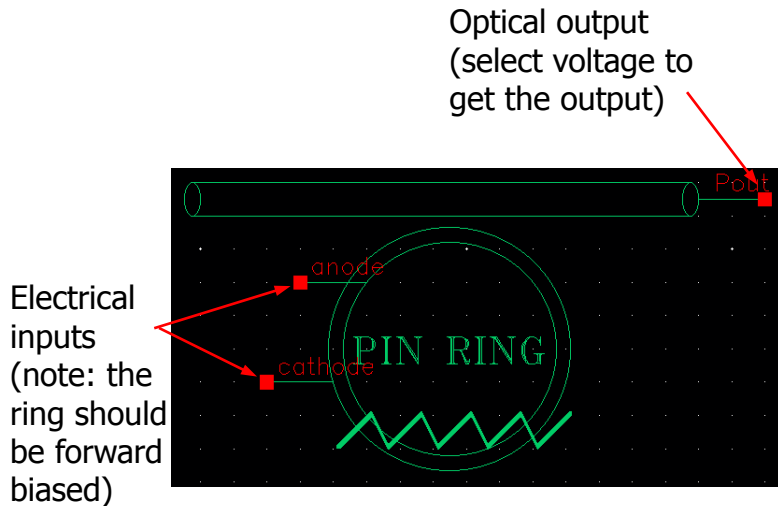
# VCSEL Model

- Testbench schematic example

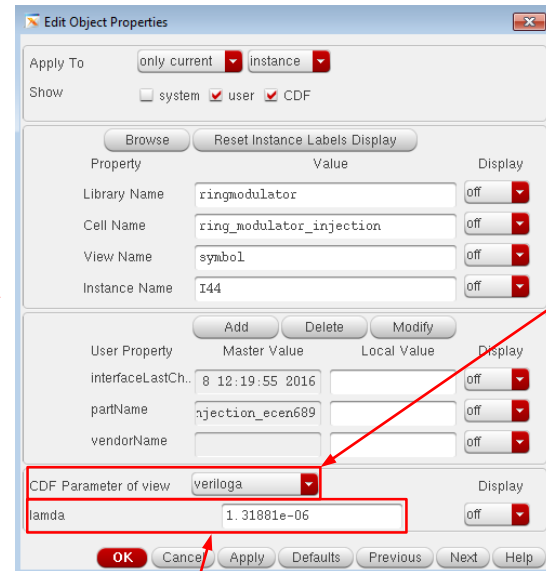


# Carrier-Injection Ring Model

- Verilog-A model symbol



Select the symbol in schematic window and press "Q"



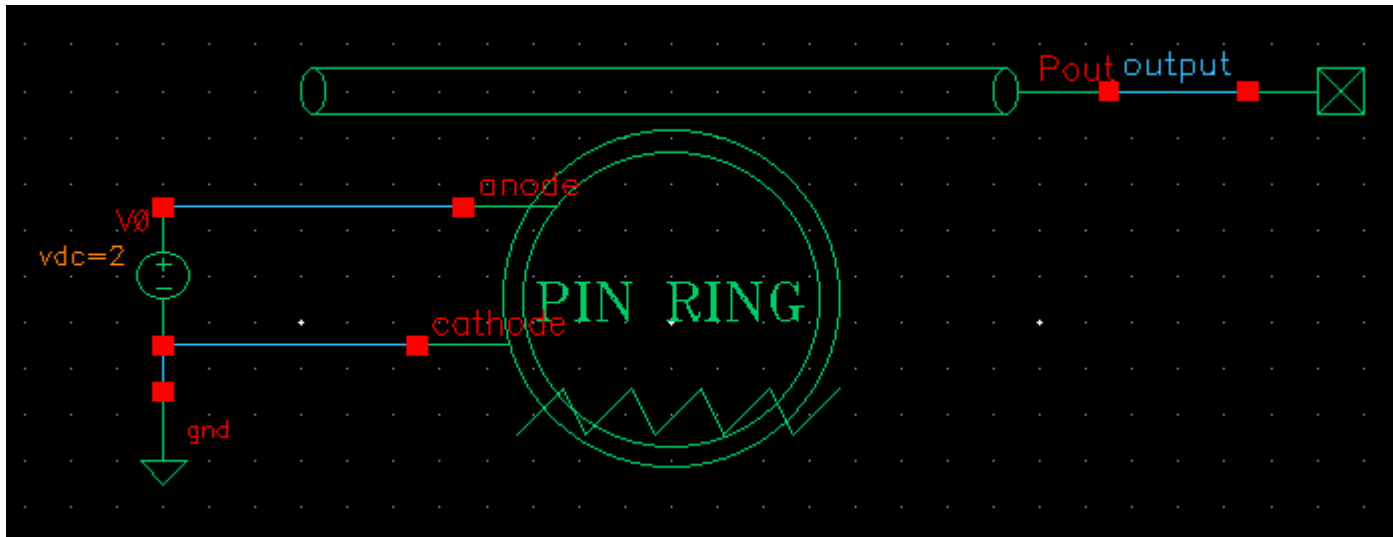
Select "veriloga" from the pull-down list

A model parameter (laser wavelength (lamda)) can be edited by users. Keep it as the default value in most cases, but it can be a variable if you want to achieve optical transmission curve.

# Carrier-Injection Ring Model

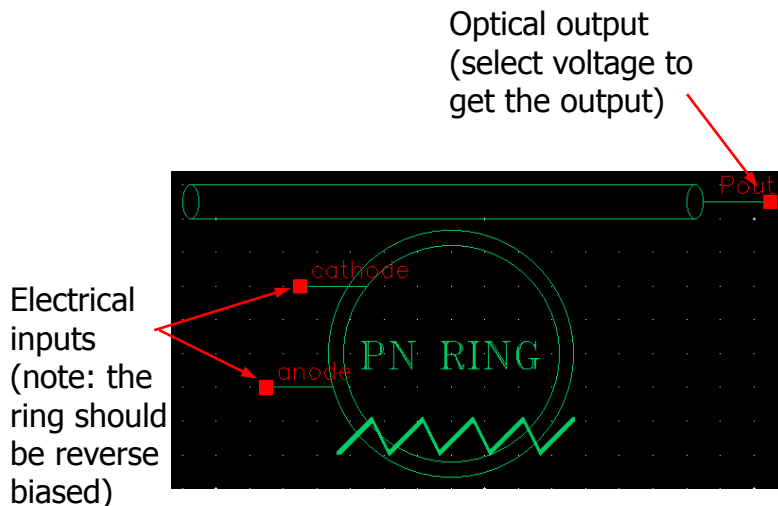
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- Testbench schematic example

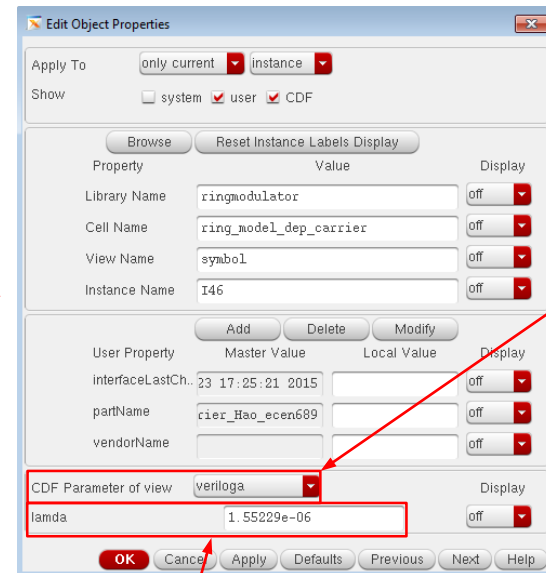


# Carrier-Depletion Ring Model

- Verilog-A model symbol



Select the symbol in  
schematic window  
and press "Q"



Select "veriloga"  
from the pull-  
down list

A model parameter (laser wavelength (lamda)) can be edited by users. Keep it as the default value in most cases, but it can be a variable if you want to achieve optical transmission curve.

# Carrier-Depletion Ring Model

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- Testbench schematic example

