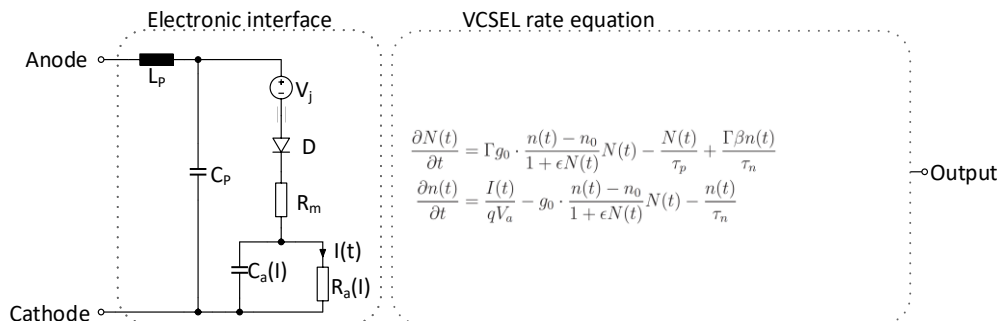


Bachelor/Master Thesis:

Wide Temperature VCSEL Model

VCSELS are a special form of low cost laser that are used for optical fiber communications systems. Sadly, they exhibit low linearity, which means that the driver circuits have to be precisely customized for the VCSEL. Hence an exact circuit model is key. A model already exists at the chair:

But it is not temperature dependent yet and could use some improvement.



Goals:

- 1) Measurement of VCSEL behavior over wide range of temperatures in the lab
- 2) Analysis of how Temperature parameter could be implemented in Model
- 3) Updating the Fitting MATLAB script and implementation of Model in Cadence with VerilogA
- 4) Comparison of Model vs real VCSEL

Stretch Goals:

- 1) Help writing a paper about the Model (if accuracy is sufficient)

Prerequisites:

- Interest or experience with LASER physics
- Experience with Cadence Virtuoso (AIC or AAIC knowledge is sufficient)
- Experience with Matlab
- Basic knowledge in RF (you should know what S-Parameters are)

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