

**A NOVEL DYNAMIC ANALYSIS AND SIMULATION
FOR QUANTUM-WELL DISTRIBUTED FEEDBACK
LASER (QW-DFB)**

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Abstract—A method for using the popular math package MATLAB and simulink to simulate the behavior of distributed feedback quantum-well semiconductor laser diodes using the rate equation that describe them is presented. A large-signal model for threshold determination and operating point selection is discussed. Small-signal properties of interest can be investigated using a state-space description of a linearized version of the rate equations, based on their Jacobian.

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