

A Theoretical Analysis on Transmission Characteristics of Semiconductor Lasers

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In this paper, on the basis of classical control theory transmission characteristics of semiconductor lasers will be analyzed. In the case of small-signals semiconductor lasers is considered as an isolated linear system and the rate equation describing its physical process is linearized; four kinds of transmission functions showing its transmission characteristics have been obtained by using network theory; response characteristics to optical-electrical input signals and corresponding equivalent network are then given according to the transmission functions, and transmission characteristics are, in turn, analyzed and synthesized according to the transmission functions and the equivalent network.

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