Dynamics of a broad-area diode laser with lateral-mode-selected long-cavity feedback - DTU Orbit (21/01/2019)

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The temporal dynamics of a broad-area diode laser with lateral-mode-selected long-cavity feedback is studied experimentally. Different dynamics are observed when different lateral modes are selected. When the feedback mirror is aligned perfectly and high-order modes are selected, in most of the cases, the output of the laser shows a periodic oscillation corresponding to a single roundtrip external-cavity loop, but the dynamic behavior disappears in some case; when the zero-order lateral-mode is selected, periodic oscillation corresponding to a double roundtrip external-cavity loop is observed. When the feedback mirror is aligned non-perfectly, pulse-package oscillation is observed, for the first time to our knowledge, in a diode laser with long-cavity feedback.

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