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Sommario/riassunto	Semiconductor lasers are key components in many optical systems due to their advantages, including their small size, low cost, high efficiency, and low power consumption. It is well-known that semiconductor lasers under external perturbations, such as optical injection, optical feedback, or delayed coupling can exhibit a large variety of complex dynamical behaviors. Nowadays, cutting-edge engineering applications based on the complex dynamics of diode lasers are being conducted in areas, such as optical communications, optical signal processing, encoded communications, neuro-inspired ultra-fast optical computing devices, microwave signal generation, RADAR and LIDAR applications, biomedical imaging, and broadband spectroscopy. The prospects for these applications are even more exciting with the advent of photonic integrated circuits. This Special Issue focuses on theoretical and experimental advances in the nonlinear dynamics of semiconductor lasers subject to different types of external perturbations.