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Laser Optical Feedback Turns 60: Results, Frontiers and Perspectives

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Message from the Guest Editors

Dear Colleagues,

As soon as the laser shot, some of its light was scattered backward. At first, it was an annoyance. Very early on, however, D. A. Kleinman and P. P. Kisliuk suggested that controlled back reflection from an external mirror could actually help the stabilization of the fundamental cavity mode by suppressing the higher-order ones. This was in March 1962. In 1963, P. G. R. King and G. J. Steward proposed to exploit optical feedback for metrology, and self-mixing eventually became research. The idea of using coherent laser feedback to extract information (e.g., position, composition, morphology, dynamical state) from the external target(s) providing back reflection has taken up many names: Laser Self-Mixing, Laser Diode Feedback Interferometry, Optical Feedback Interferometry and Optical Feedback Interference. It has rooted itself as a major player in many branches of laser optics and photonics moving, from laboratory tables to embedded technology, and recently began to beat the hot tracks of silicon photonics, unconventional imaging and Artificial-Intelligence-aided signal processing.

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Message from the Editor-in-Chief

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