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The output dynamics of mutually coupled semiconductor face to face laser systems under noise effect

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Abstract:

We have explored the dynamics of fields from two synchronized face- to- face lasers in the presence of noise. The study was carried out under the effect of coupling strength between the two systems, line-width enhancement factor and injection current density. All these factors affect the dynamics of temporal variation of fields from both lasers. Regions of amplitude death occurs within chaotic regions as a result of increasing of injection current density and coupling strength.

Keywords: Semiconductor lasers, Synchronization, Feedback, Chaos, Amplitude death.