

NARROW LINEWIDTH AND MODE-LOCKED LASERS



AT A GLANCE

Application-specific high-performance lasers based on HHI's SiN-based hybrid photonic integration



Features

- High-Q micro-ring resonators for narrow linewidth and wide-tunability
- Low-loss waveguide spirals for tailorable repetition rate

Applications

- Telecom / Datacom
- Quantum technologies
- Sensing and analytics
- mmW / THz photonics

SiN Hybrid Integration for Lasers

Fraunhofer HHI's SiN wafer line enables the hybrid integration of SiN microcavities with active materials such as InP, GaAs or GaN to realize high-performance lasers

- External-cavity lasers with linewidths < 1kHz
- Mode-locked lasers with tailorable repetition rate down to 1 GHz
- Concept extendable to wavelengths from NIR down to VIS

References

International R&D projects

Q-Pilot
(funded by EU commission)

National R&D projects

PolyChrome Berlin
QuNET+LORELAY
(funded by BMBF)



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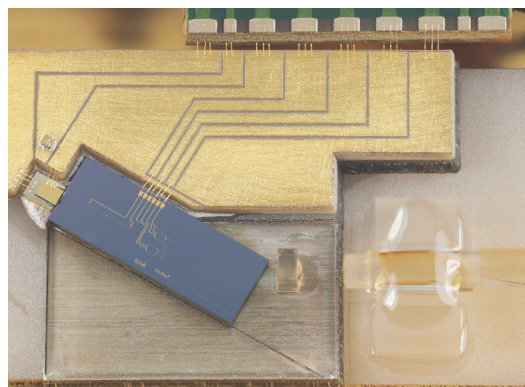
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External-cavity lasers with < 1 kHz linewidth and output power > 10 dBm

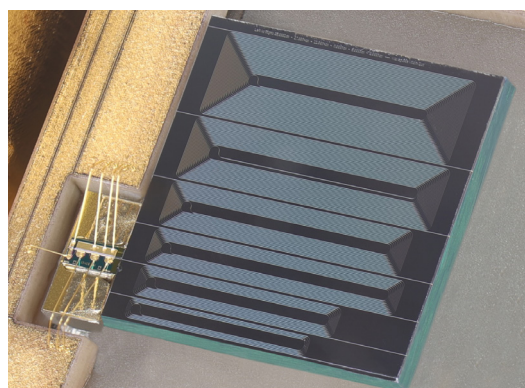


External-cavity laser module at 1550 nm



External-cavity laser hybrid PIC

Mode-locked lasers with tailorable repetition rate down to 1 GHz



Mode-locked laser hybrid PIC