RARE EARTH DOPED MICROSTRUCTURES MADE BY PULSED LASER DEPOSITION

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KEYWORD(S) :

SCIENTIFIC CONTEXT :

Detection of chemical species is of interest in a wide range of applications, from biosensing to environmental monitoring. For such a task, precise measurements are made using tunable wavelength sources for spectroscopic evaluations, but equipments are bulky and expensive. Photonic integrated circuit (PIC) aims to miniaturize and combine multiple optical devices on a planar substrate to create compact, energy-efficient and complex on-chip functionalities [1]. In this area, ring resonator designs can be used for chemical sensing [2].

MISSIONS :

In this project, we want to design, fabricate, and characterize integrated tunable infrared sources based on micro-heaters integrated into doped ring resonators coupled to a SiN waveguide. The Al2O3 doped laser [3] is coupled to a SiN waveguide. The laser is integrated by pulsed laser deposition and lift-off processing [4], [5]. Since a micro-heater is placed in the center of the ring, the resonance can be electrically tuned to control the emitted wavelength for spectroscopy applications.

OUTLOOKS :

More details on :

https://aufrande.eu/position/dc63

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