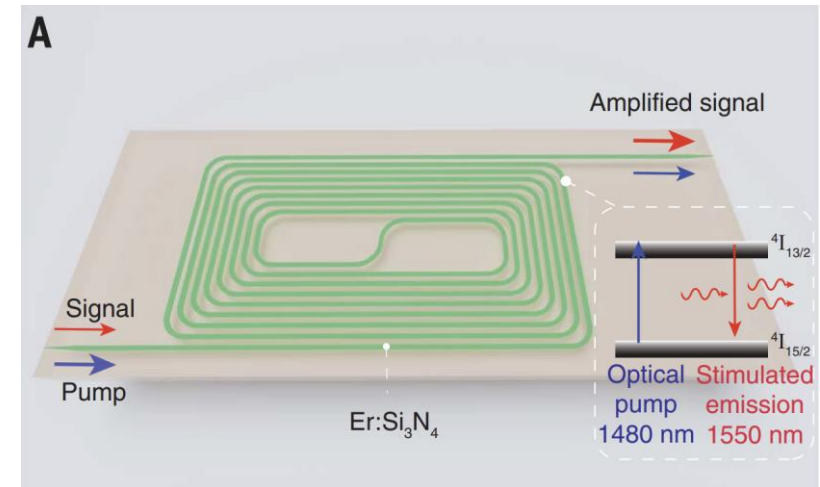


Master Thesis:

Design and Characterization of EDWA

The erbium-doped fiber amplifier (EDWA) has been a key enabling technology for long-haul optical communication systems. As the demand for higher data rates increases, a transition from electronics-based to photonics-based technologies is anticipated, motivating the investigation of erbium ions as gain media for on-chip optical amplification. In this context, Liu *et al.* [1] demonstrated an erbium-doped waveguide amplifier implemented on an ultra-low-loss silicon nitride photonic integrated circuit, with waveguide lengths of up to 0.5 m achieved on a compact chip.



[1] Liu et al., Science 1309-1313 (2022)

Your tasks:

- Literature review of state-of-the-art EDWAs across mechanisms and platforms.
- Design and simulation of on-chip photonic components.
- Optical packaging of the devices.
- Experimental characterization and verification.

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