WWU MÜNSTER

MÜNSTER NANOFABRICATION FACILITY

CeNTech CENTER FOR NANOTECHNOLOGY

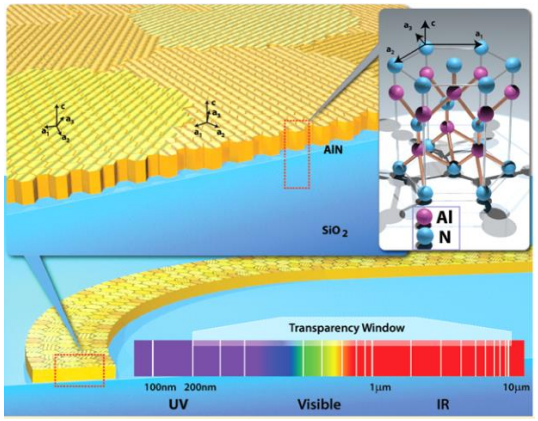
Master Thesis: **Realization and characterization of waveguide integrated electro-optically tunable devices on AlN**

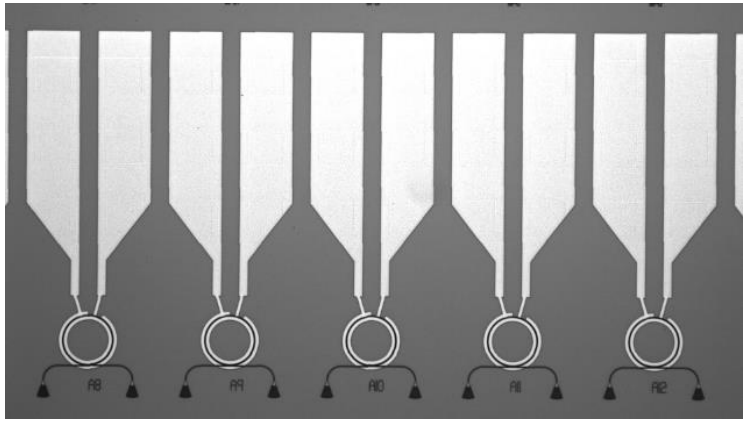
Aluminum nitride is a wide band semiconductor which has been proposed and adopted for the realization of low loss integrated optical circuitry, usable from visible to near infrared wavelengths. Due to its non-centrosymmetric crystal structure, this material shows non-zero Pockels coefficients, allowing to realize ultra-low power active devices, which are fundamental building blocks for routing and manipulating photonic states on chip. These devices are necessary for implementing photonic quantum computers and advanced on-chip sensing platforms.

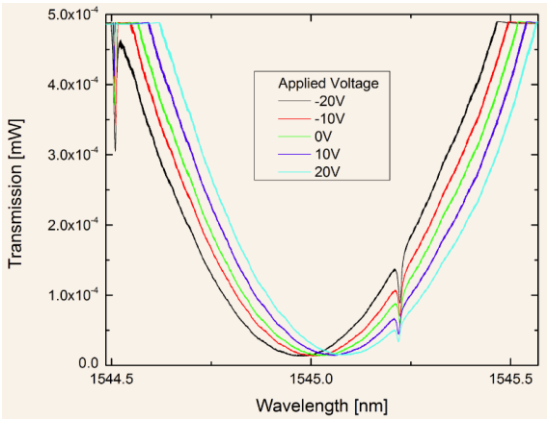
The **project** comprises: simulation, design, material analysis, realization and characterization of electro-optic modulators, tunable filters and phase shifters.

During **your activity** in our group you will be introduced to the simulation software Comsol Multiphysics, our circuitry design software, our state-of-art optical fibers setup for the characterization of the integrated circuitry, our new cleanroom environment and all the nanofabrication tools you will need for realizing and testing your devices.

English language and basic Python programming skills are desirable, but we mainly ask you to **share with us your curiosity and passion** for an interesting topic.







References:

New J. Phys., 14, 095014 (2012)
Nano Lett., 12 (7), 3562 (2012)

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