

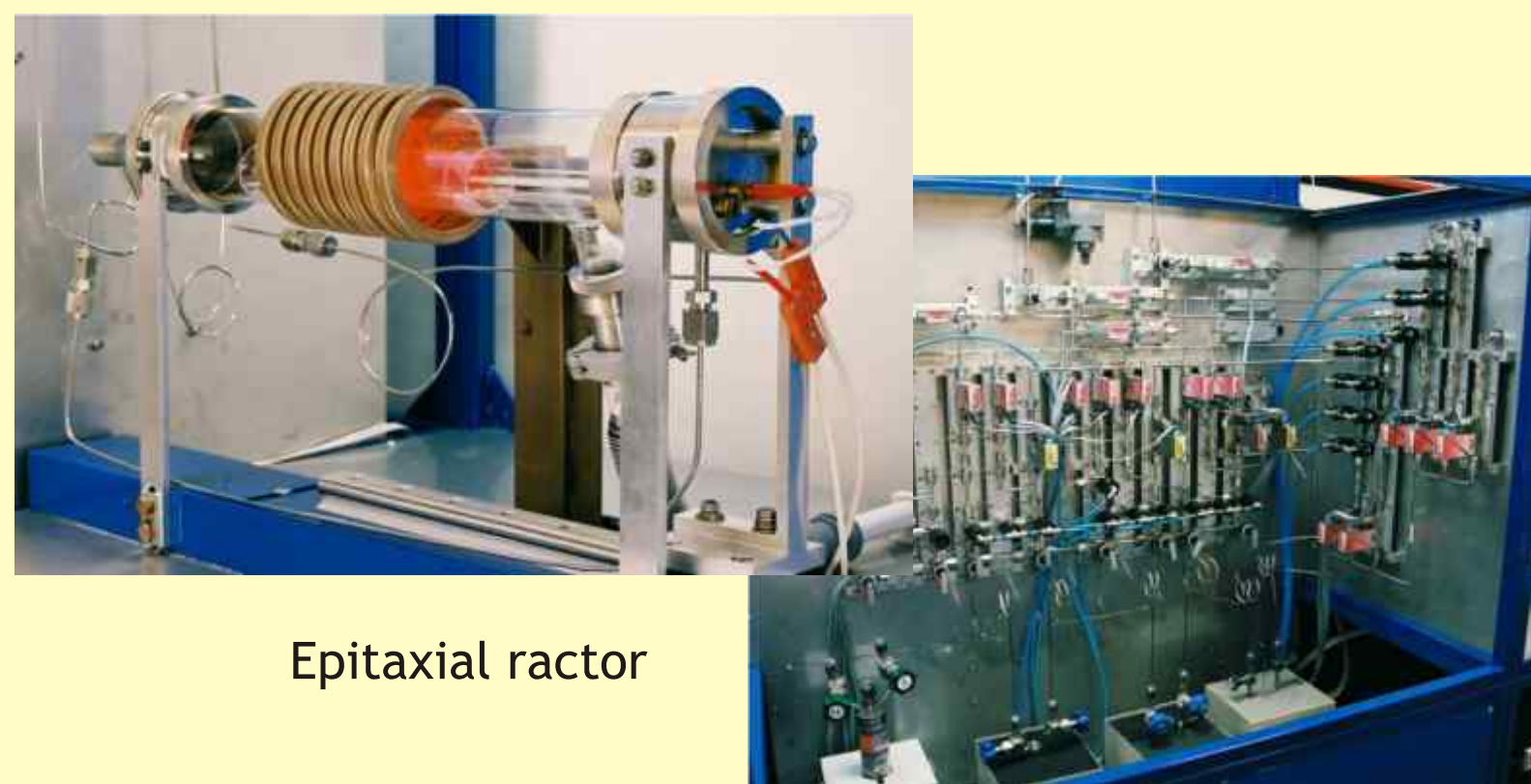


Nitrides: Growth, Characterization and Devices

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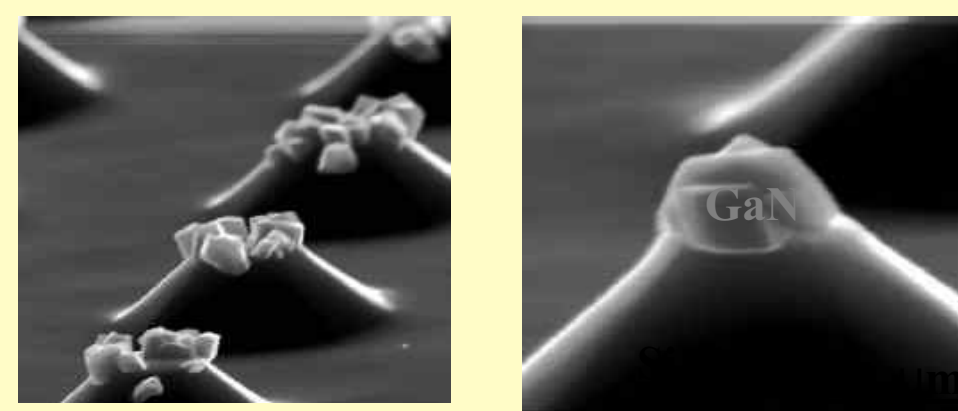
(Al,Ga,In)N layers growth by MOVPE on sapphire, SiC and Si substrates



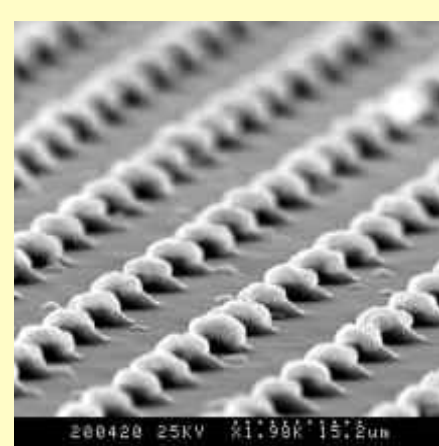
Epitaxial reactor

Gas manifold

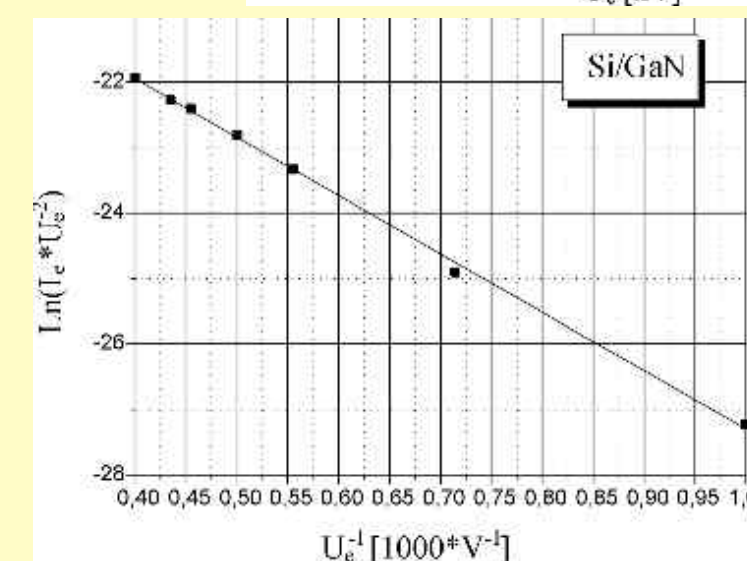
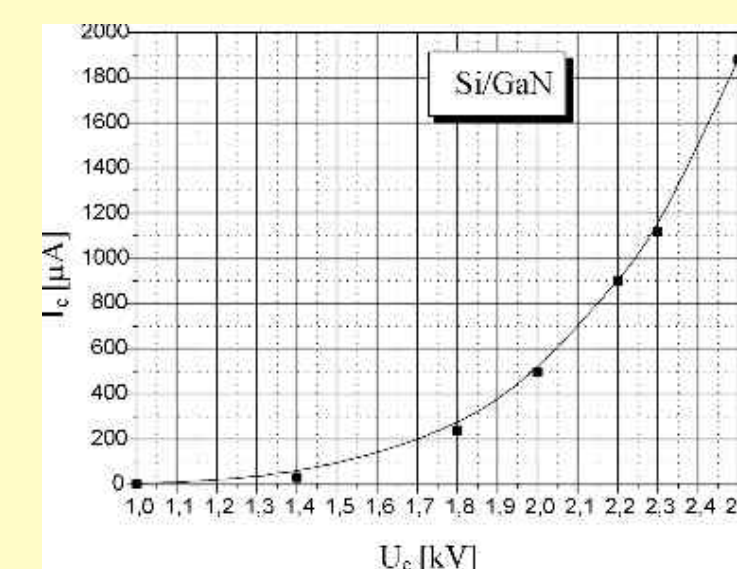
GaN growth for field emitters fabrication



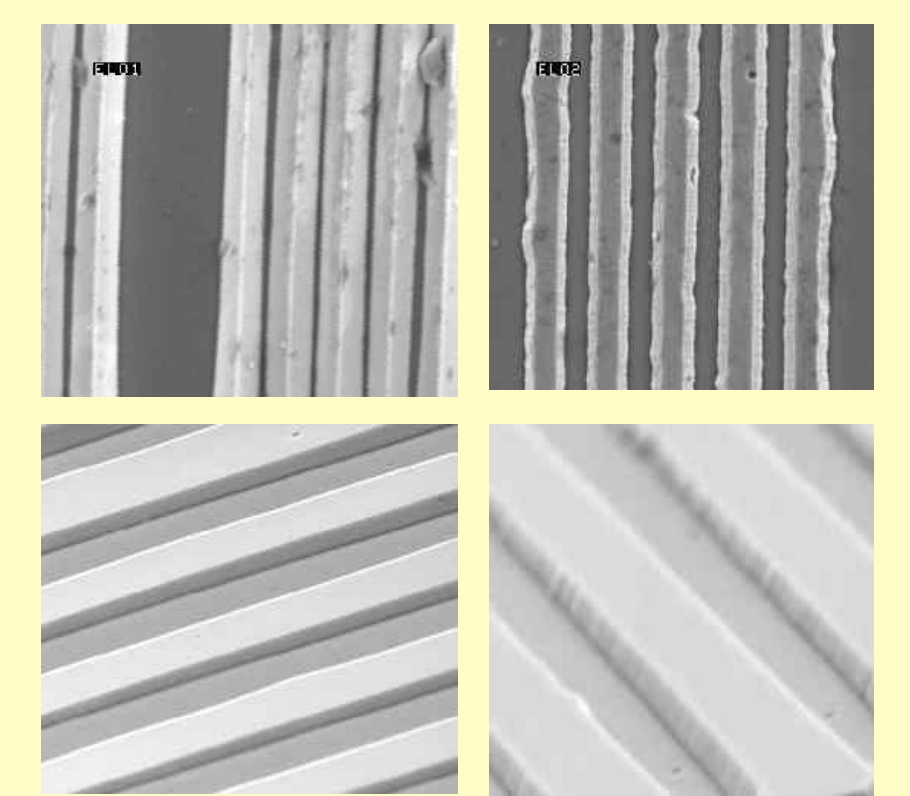
Si tips covered with GaN



SAE GaN ridge Waveguides

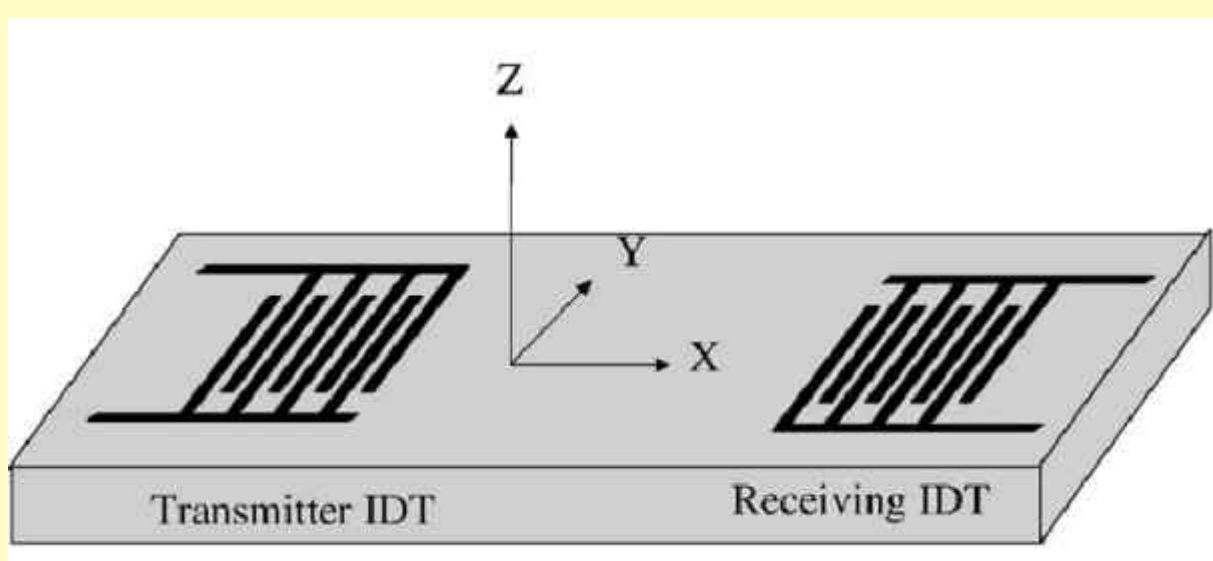


The array of 42x42 Si/GaN emitters

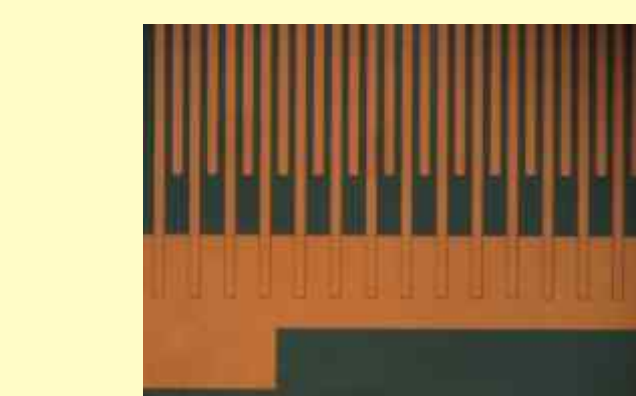


SEM photograph of GaN ridge waveguides grown at: 960°C (a), 1000°C (b), 1040°C (c) and 1080°C (d)

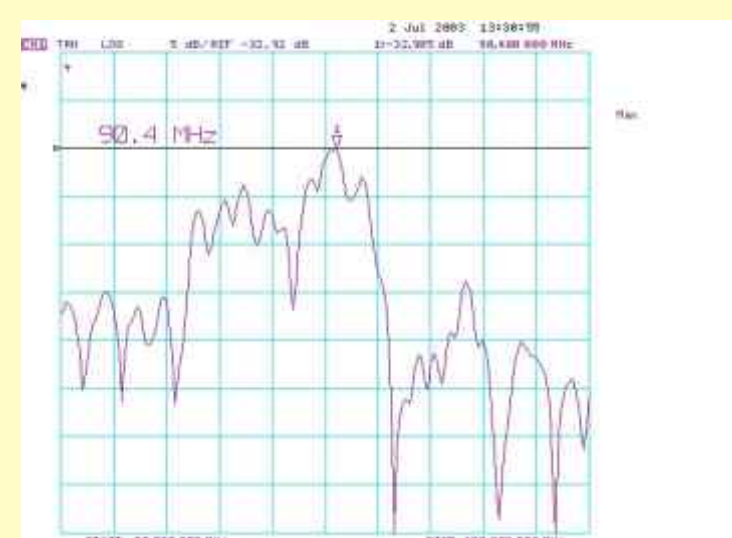
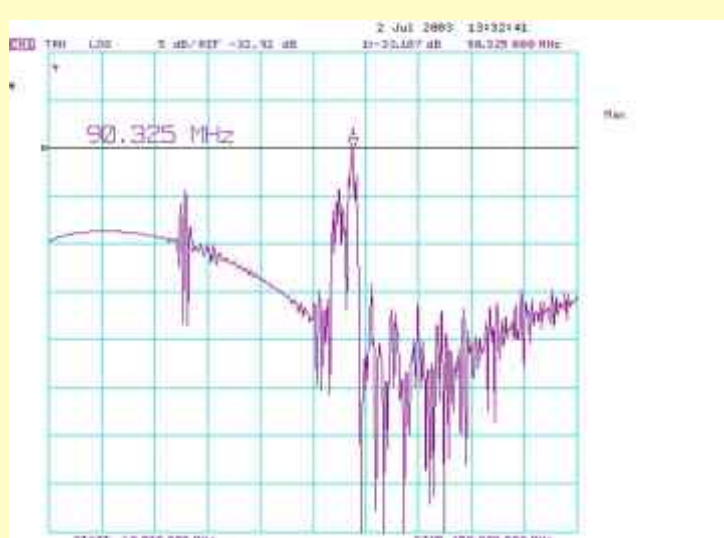
GaN SAW (surface acoustic wave) transducers for high temperature piezoelectronics and sensor applications



Surface acoustic wave generation on a piezoelectric substrate with an interdigitated transducer



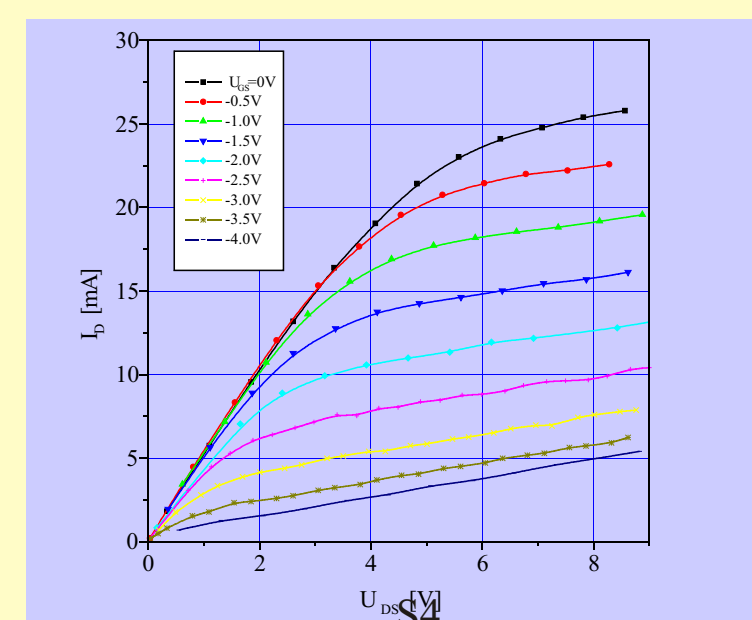
Fragment of fabricated SAW transducer



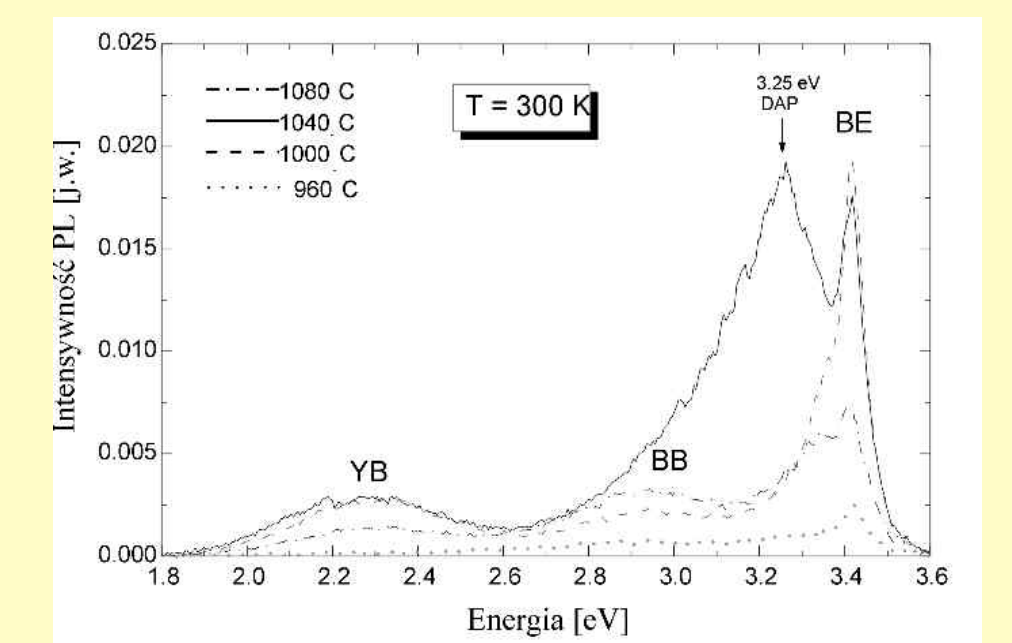
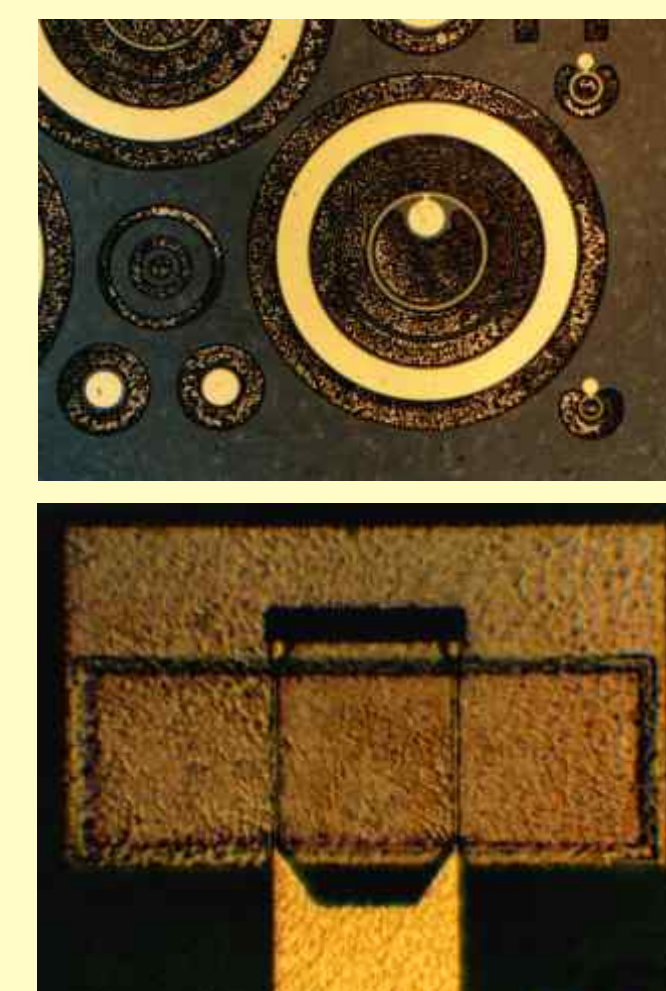
Frequency response characteristics of GaN/Al_{0.147}Ga_{0.853}N/sapphire transducer measured: in 10-150MHz range (a), near the center frequency (90,4 MHz)

I-V characteristic (a) and Fowler - Nordheim plot of the array of GaN/Si emitters

Tranzystor HFET (Heterostructure Field Effect Transistor)

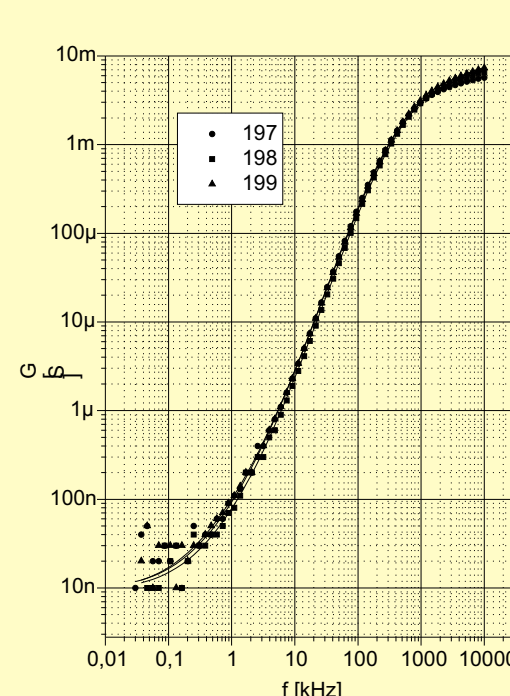
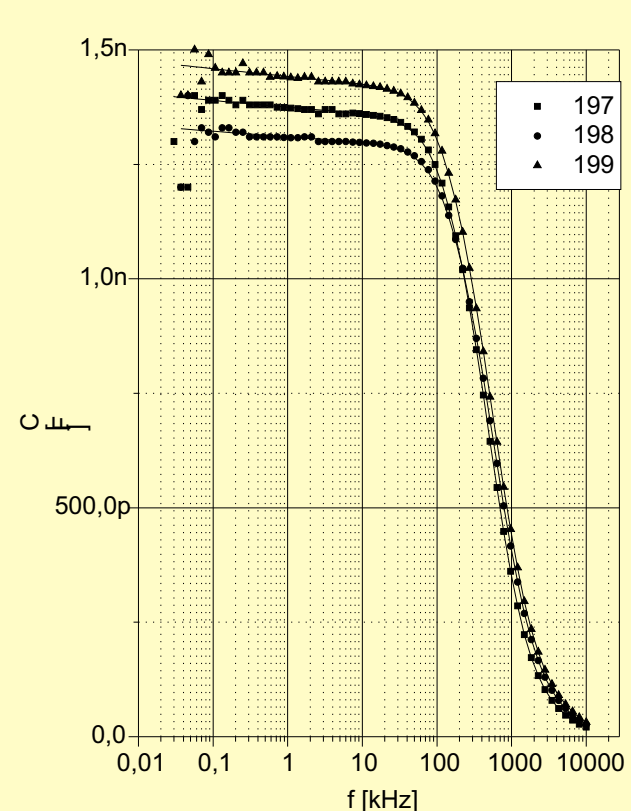


30nm Al_{0.05}Ga_{0.95}N
65nm LT AlN
Szafir

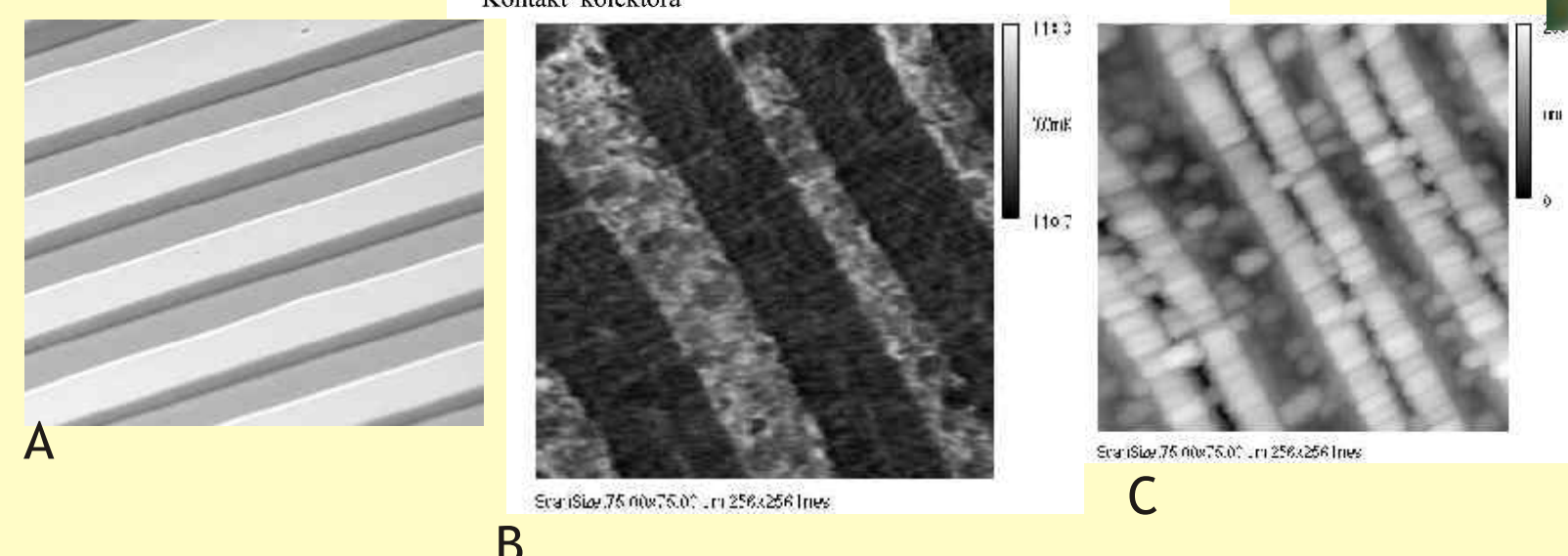
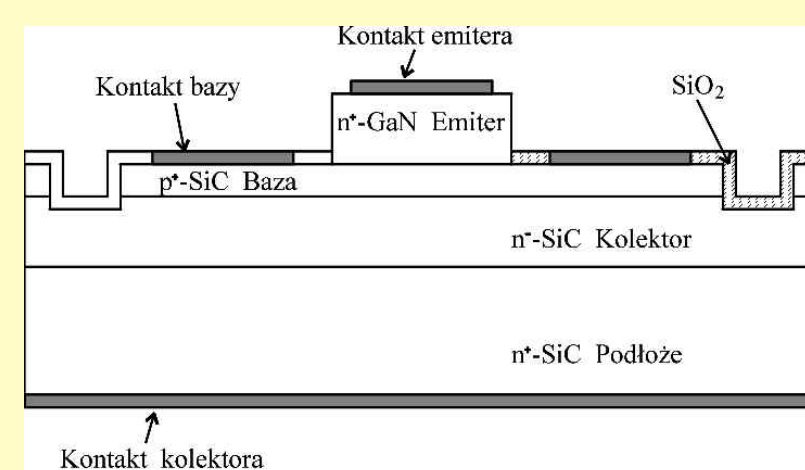


PL spectra of GaN ridge waveguides measured at RT

The capacitance (a) and conductance (b) vs. frequency for mercury contact to AlGa_xGa_{1-x}N (#197- #199) heterostructure

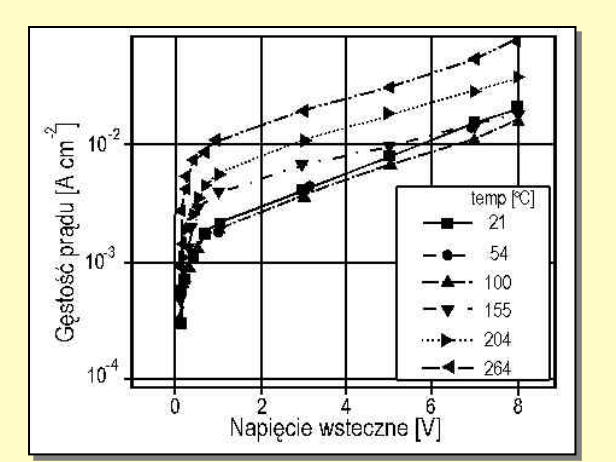
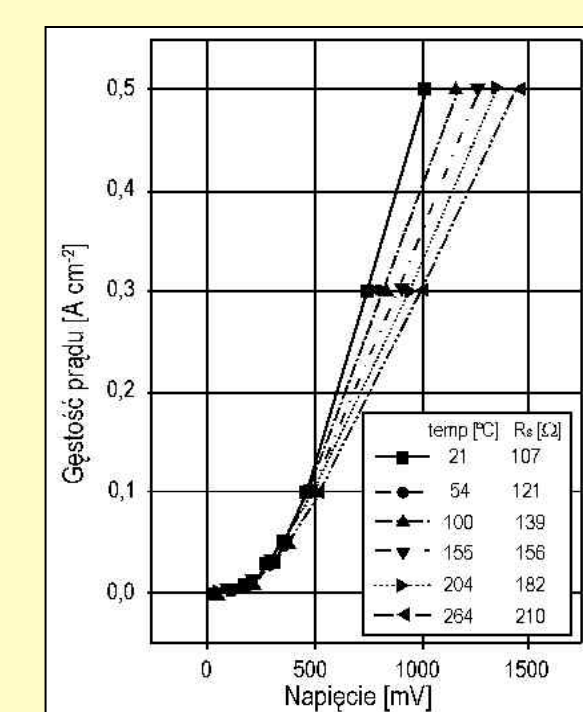
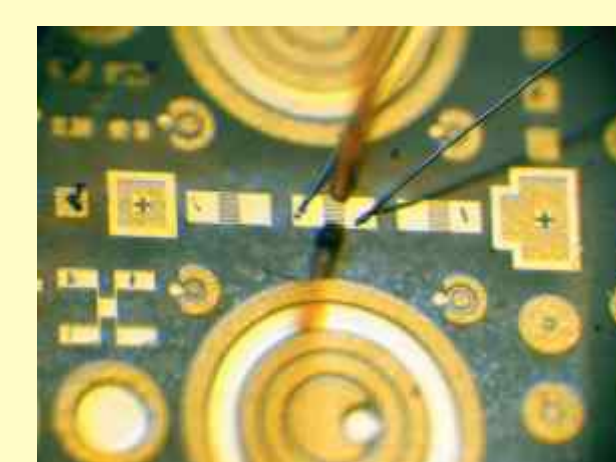


SAE HBT GaN/4H-SiC



SEM (a), STH (b) and AFM (c) Images of SAE GaN/SiC structures (b,c - scan area 75 75 μm)

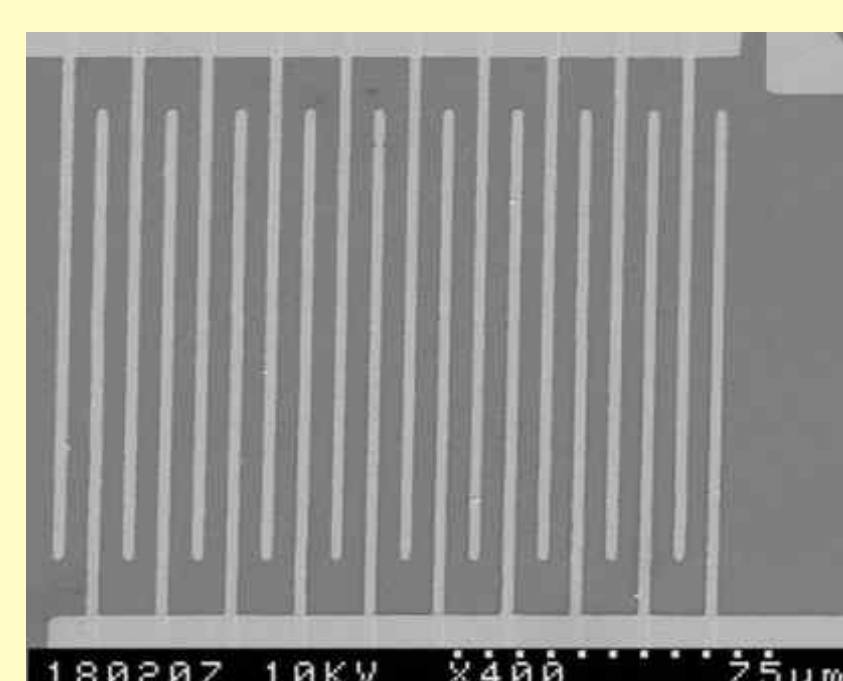
GaN devices: Schottky diodes



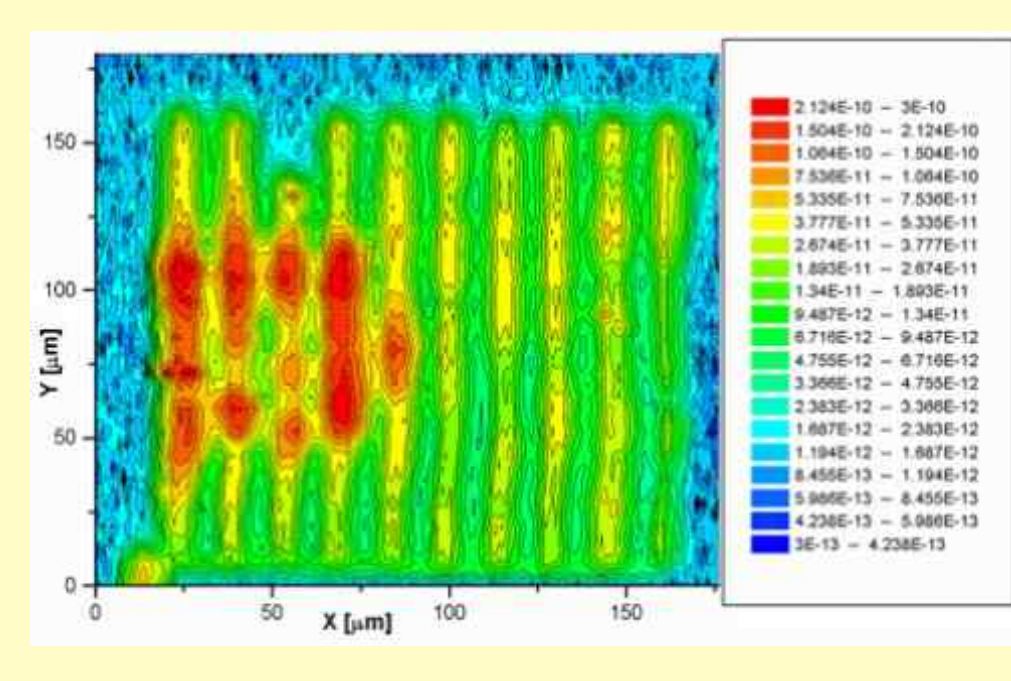
AlGa_xMSM characterisation by LBIC technique

30nm Al_xGa_{1-x}N
20nm LT GaN
Szafir

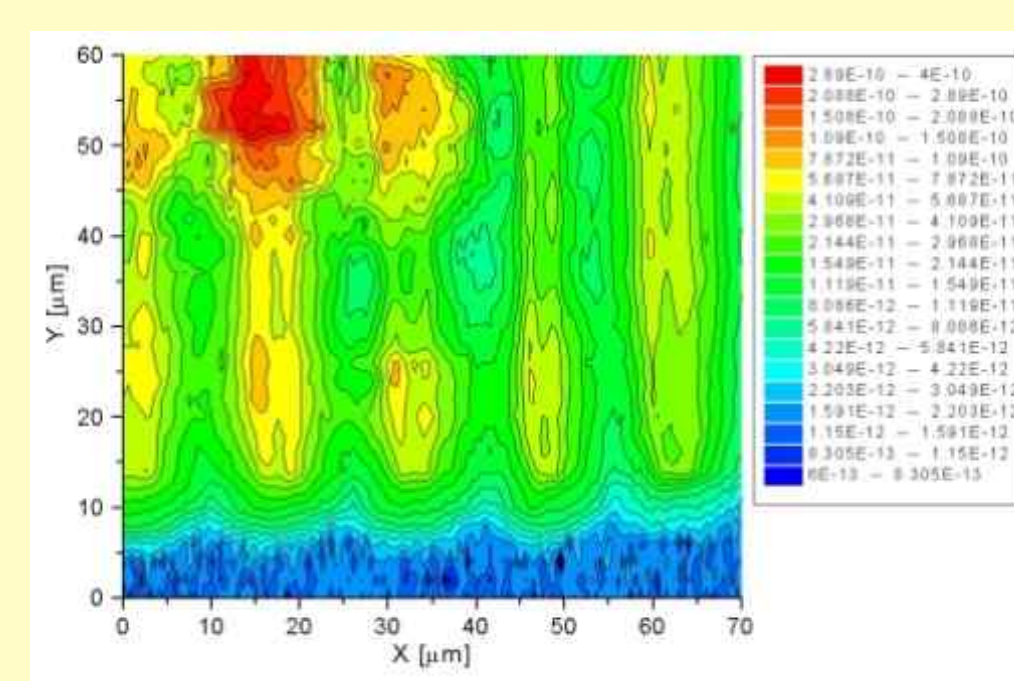
Al_xGa_{1-x}N
#197 - x=0,20
#198 - x=0,25
#199 - x=0,27



SEM image of Al_{0.25}Ga_{0.75}N MSM structure



LBIC image of Al_{0.25}Ga_{0.75}N MSM structure



Detailed LBIC image of MSM structure