Freiberg
Instruments

MD**picts** **pro**

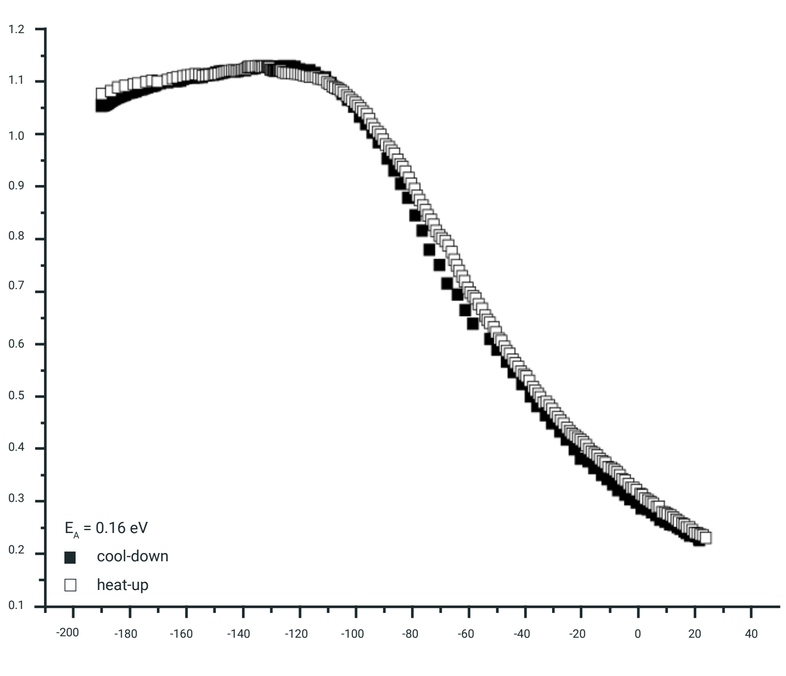
Microwave
Detected
Photoconductivity

Temperature dependent minority carrier lifetime measurements

Contactless and destruction free temperature dependent measurement of minority carrier lifetime and electrical characterization of bulk and interface trap levels of semiconductors, ranging from HgCdTe to widebandgap semiconductors as SiC and GaN.

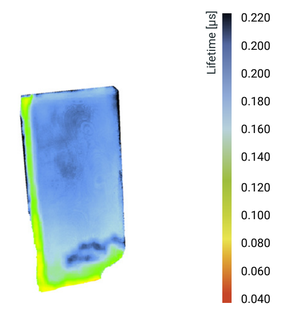
HgCdTe

Excited with 1550 nm
Measurement of lifetimes down to 20 ns
No shift between cool down and heat up
Excellent thermal connection

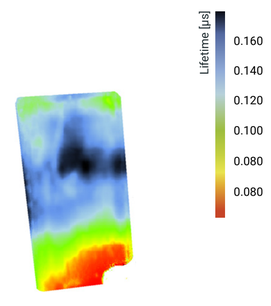


τ_{AVG} = 185 ns

RT



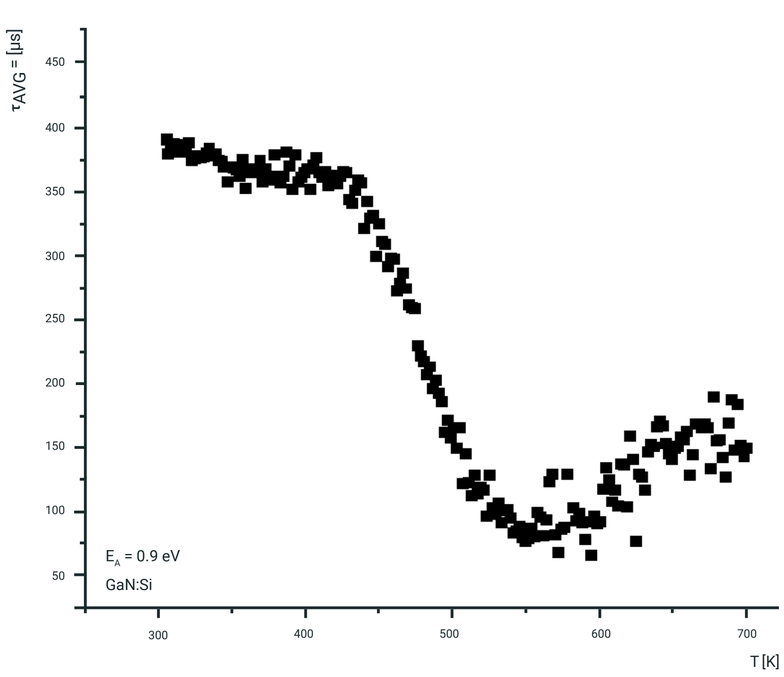
83 K



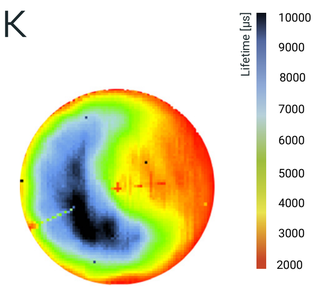
τ_{AVG} = 805 ns

GaN

Excited with 355 nm
Measurement of lifetimes up to 100 ms
Determination of defect activation energy
probably C_N



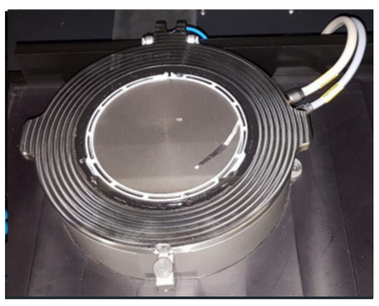
83 K



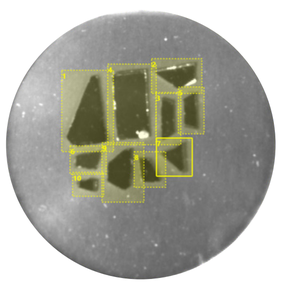
τ_{AVG} = 5.73 ns

Mapping of 4" wafer with 100 µm resolution at 83 K

Very long time constant
Persistant photoconductivity
probably related to YL



Cryogenic stage



Automatic sample recognition

Technical specifications

Temperature range	83 ... 350 K
Sample size	up to 4" wafers small wafer pieces
Resistivity	0.2 ... 10^{10} Ωcm
Conduction type	p,n
Minority carrier lifetime	20 ns ... 100 ms
Measurable properties	lifetime, photoconductivity, activation energy, etc.
Excitation	**355 ... 1550 nm**