



ADVANCED ELECTRONICS LABORATORIES PROJECT

ASMEC-ELECTRO PHYSICAL CHARACTERIZATION SYSTEM

- Kinetics of free and trapping charges.
- C-V Characterization (Pulse and line scanned)
- I-V characteristic
- Charge-DLTS
- Photo-stimulated Internal Field Transient Spectroscopy (PIFTS)
- Electrical Excitation
- Optical Excitation
- $I_{ph}(t)$
- $V_{ph}(t)$
- $Q(t)$
- $\Delta Q(t)$
- $I(t)$
- Emission/Recombination Rate
- Minority Carrier Concentration
- Minority carrier Life time
- Built-in Voltage
- Resistivity/Conductivity
- Trapping center concentration
- Process Protocols Characterization of diverse devices such as
- Photo-detectors, Electro-luminescent devices, diodes etc.
- Arrhenius Analysis/Activation Energy
- Capture cross-section
- Concentration of non-compensated donors and acceptors
- Dielectric constant
- Charge Analysis
- Carrier Concentration/Deep Level concentration
- Failure mode Analysis

Current Sensitivity	▪ 1pA
Charge Sensitivity	▪ 5 E- 16C
Range of Bias Voltage	▪ -13.5V to +13.5V
Range of Rate window	▪ 10 μ s-200s
Temperature	▪ 72K-500K (Extendable)
Interface	▪ Probe-station /External Acquisition
Deep level concentration sensitivity	▪ 5 E -7



Principal Investigator: Prof. Dr. Ahmed Shuja Syed