# WAFER PROFILER CVP21

## ECV Measurement of Doping Profiles

Patents: DE-10256821, US-7026255 (further pending)

CVP21 including option FP: Footprint 60*80cm
for minium required clean room space

### Wafer Profiler CVP21: The *COMPLETE* Solution.

### *COMPLETE* Material Range:

Group IV: Si, Ge, SiC
Standard III-V: GaAs, InP, ...
Ternary: AlGaAs, GaInP, ...
Quaternary: AlGaInP, ...
Nitrides: GaN, AlGaN, AlInN, ...
II-VI: ZnO, CdTe, CdHgTe, ...

### *COMPLETE* Sample Range:

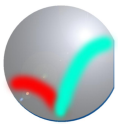
Stacked layers no problem
No restrictions concerning substrate
Sample size: 4*2 mm² ... 8" Wafer

### *COMPLETE* Resolution Range:

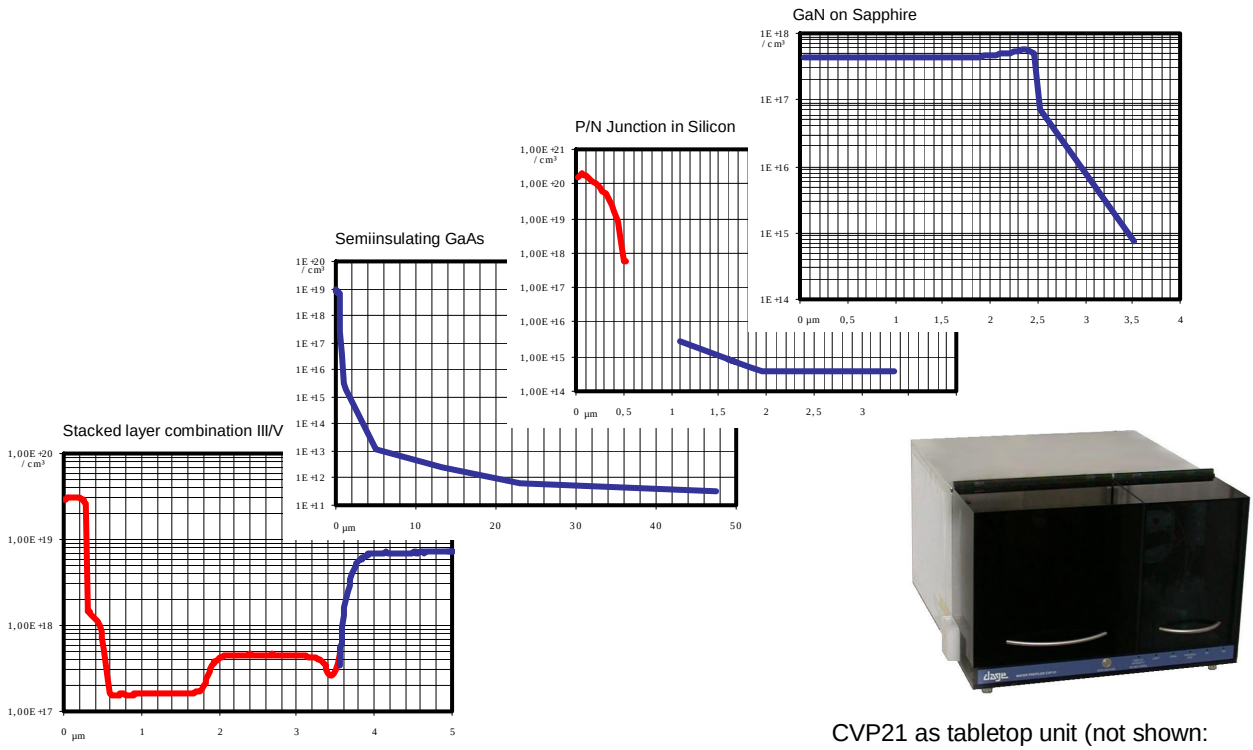
< $10^{12}$ $cm^{-3}$ ... > $10^{21}$ $cm^{-3}$ (*)
1 nm ... 100 µm (*)
(*) may depend on material type/ sample quality.
Please ask for sample measurements.

### *COMPLETE* System:

HiRel - Calibration-free - Easy-to-Use
Wafer-Stepping - Camera-Control
Recipes - Auto-Load/Unload/Reload
Manual/SemiAuto/FullAuto



# Typical results:






CVP21 as tabletop unit (not shown:
Drain can and PC with monitor and printer)

# ECV Profiling - Solution Advantages:

| | **Hall** | **SIMS** Secondary Ion Mass Spectroscopy | **SRP** Spreading Resistance Profiling | **ECV** Electrochemical CV-Profiling |
|---|---|---|---|---|
| Monitor the doping concentration | ✓ | ✓ | ✓ | ✓ |
| Monitor the electrical activation of dopants, including doping type n/p | ✗ | ✗ | ✗ | ✓ |
| Monitor the crystalline quality of the sample | ✗ | ✗ | ✗ | ✓ |
| Easy sample preparation | ✗ | ✗ | ✗ | ✓ |
| The substrate may be conductive | ✗ | ✓ | ✓ | ✓ |
| The thickness of the epi layer may be unknown | ✗ | ✓ | ✓ | ✓ |
| The depth profile may be measured with a resolution down to 1nm | ✗ | ✓ | ✗ | ✓ |
| Several layers may be measured | ✗ | ✓ | ✓ | ✓ |
| A wide range of materials may be analyzed | ✓ | ✓ | ✗ | ✓ |
| Concentrations below $10^{14}$ $cm^{-3}$ may be measured | ✓ | ✗ | ✗ | ✓ |
| Easy equipment preparation (no tedious calibration required) | ✓ | ✗ | ✗ | ✓ |
| Wafer topography may be measured on a complete wafer | ✗ | ✗ | ✗ | ✓ |
| PEC etching (Photo-Electrochemical etching) may be evaluated | ✗ | ✗ | ✗ | ✓ |
| The surface may be etched/passivated at start of the measurement | ✗ | ✓ | ✗ | ✓ |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