

aixPlover Software Tool

Management and advanced analysis of measurement data for various thin and thick film and bulk applications.

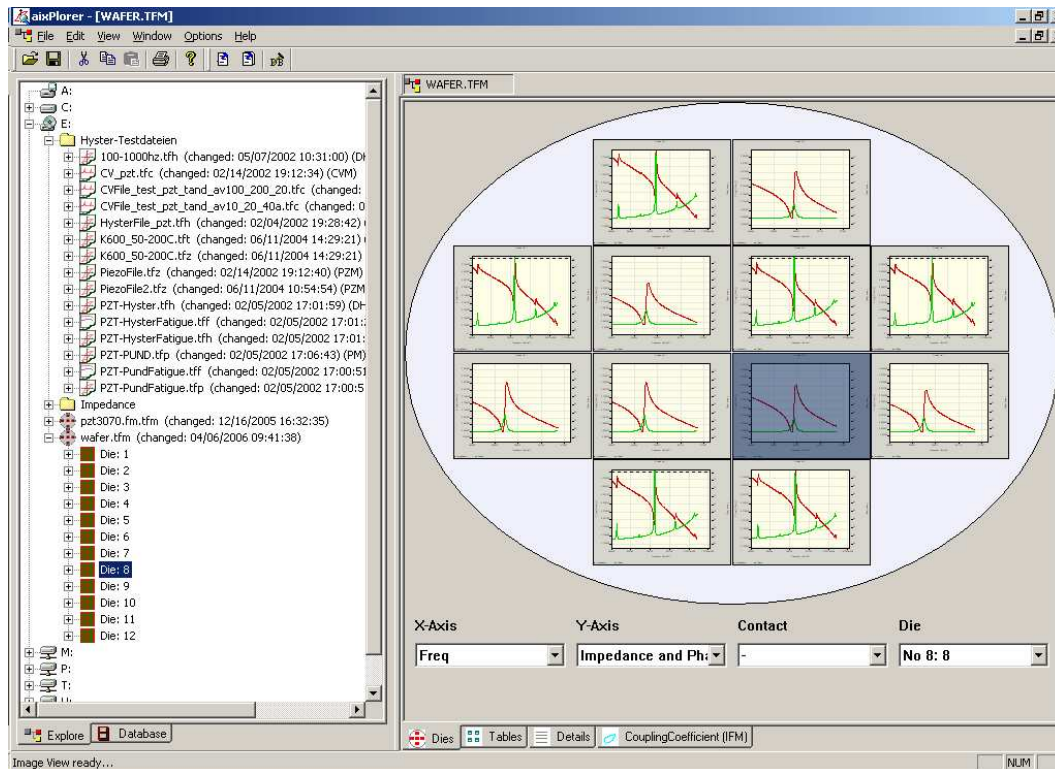


Fig.: Wafer distribution of impedance resonance measurements on different dies.

Application

Extracting of additional characteristic values for FeRAM and sensors and actuators

- Parameter tracking for FeRAM applications, for example memory window parameter calculation of ferroelectric thin films
- Coefficient tracking for sensor and actuator applications, for example piezoelectric coupling coefficient or electro-mechanical hysteresis

Performance

- Sophisticated assistance for users of aixACCT measurement systems
- Browsing of measurement data directories
- File content overview
- View measurement details for presentation and reports
- Multiple measurement comparison
- Optional database connection (ODBC) for easy access on material / device characteristics

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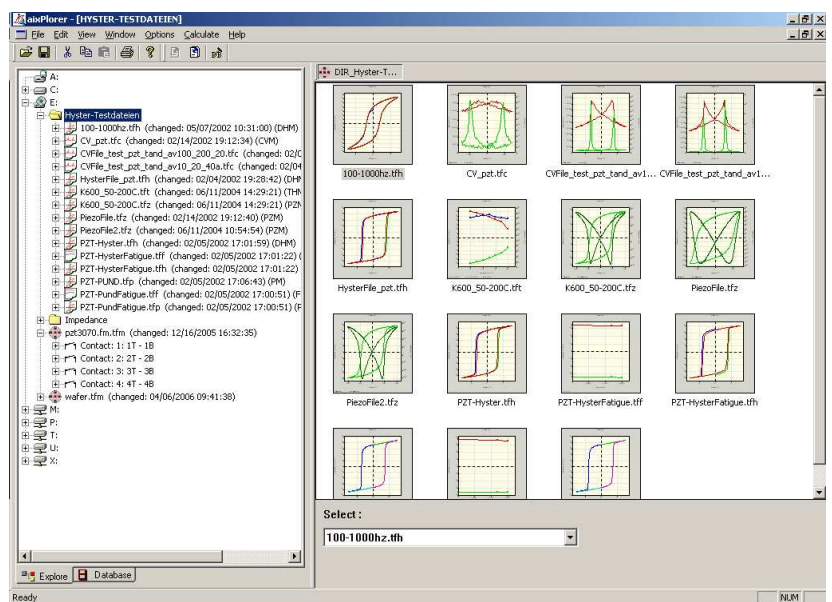
Software Features

The aixPlorer software tool has been developed to assist users of the aixACCT measurement systems to manage and further analyse their measurement data. Users can browse through directories with measurement data and gain an overview of the file contents. Besides this, measurement details with measurement parameters and characteristic values can also be viewed. Sophisticated evaluation functions are available to extract additional characteristic values e.g. the memory window parameter for FeRAM applications or the piezoelectric coupling coefficient for sensor/actuator applications. For power users with a large amount of measurement data the aixPlorer software can be optionally combined with a database program such as MySQL™ or MS Access™.

Features

1. Measurement data browser

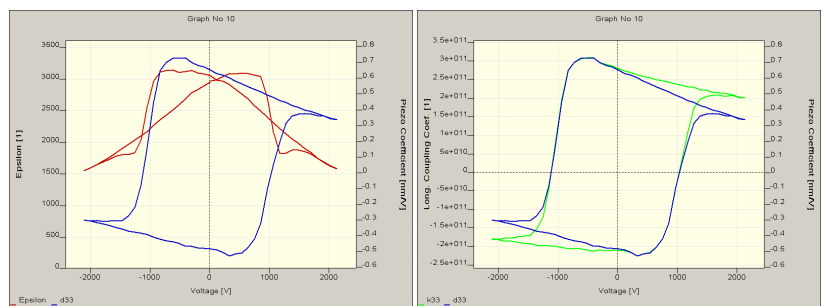
- Windows Explorer-like tree view and selection of directories and aixACCT measurement files with name and timestamp
- Overviews of all records in a file with a small graph for each measurement
- Detailed view of single records including sample information, measurement conditions and characteristic values
- Multiple measurements can be opened in parallel to compare characteristic values, copy graph views for reports and presentations, and printing



2. Sensor & Actuator Applications: Extraction of additional characteristic values

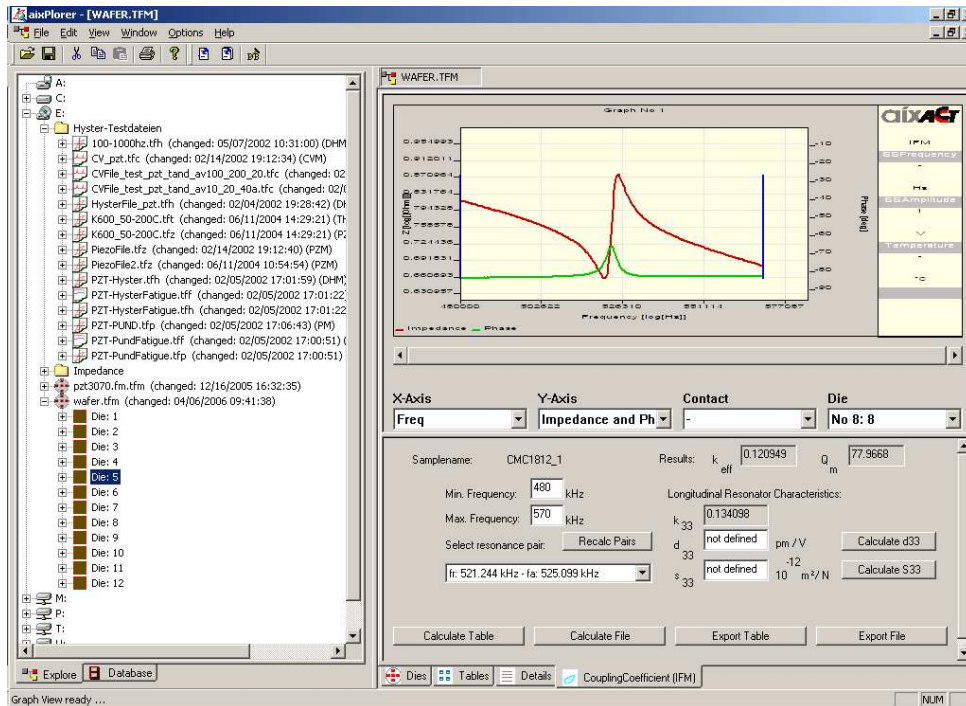
Depending on the measurement type, different additional characteristic values can be extracted:

- Calculation of the bias voltage dependent coupling coefficient k_{33} from small signal capacitance and piezoelectric coefficient d_{33} measurement

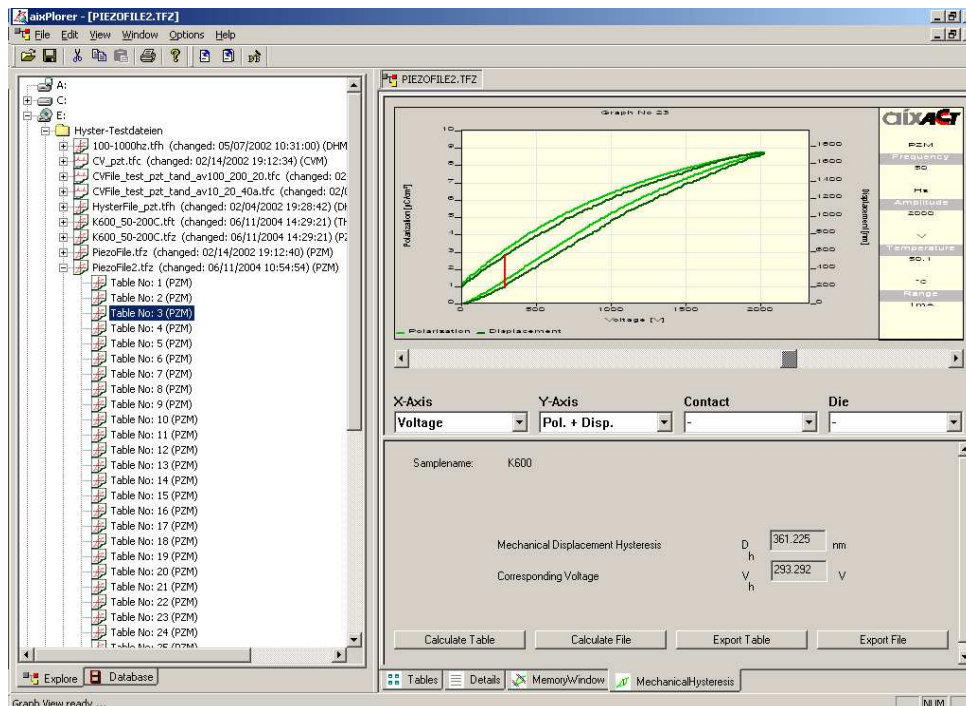


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- Extraction of coupling and piezoelectric coefficients from single resonance's in impedance measurements

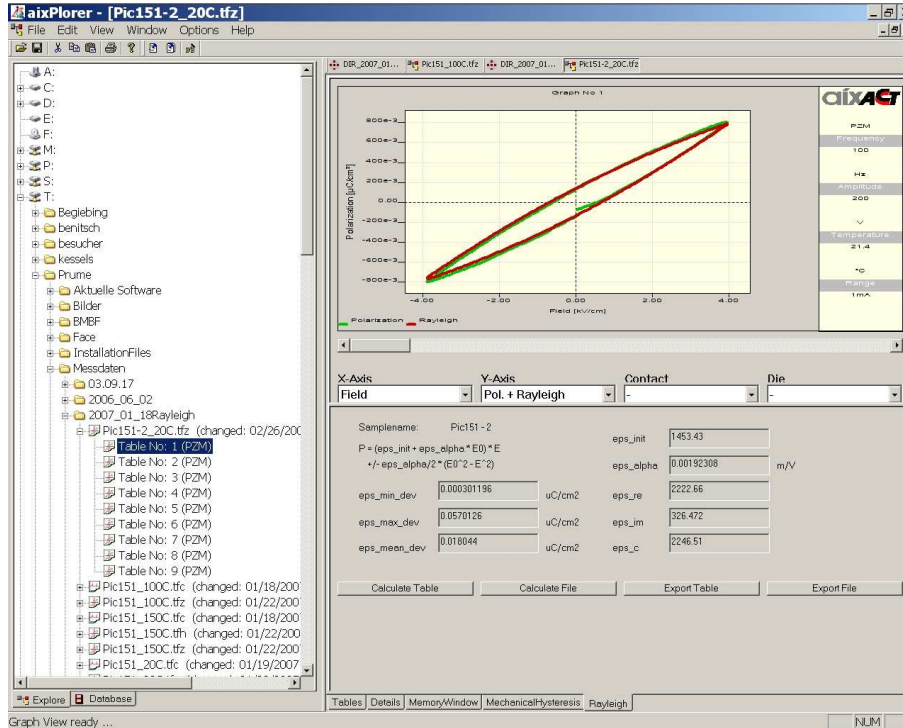


- Extraction of the electro-mechanical hysteresis from unipolar displacement measurement

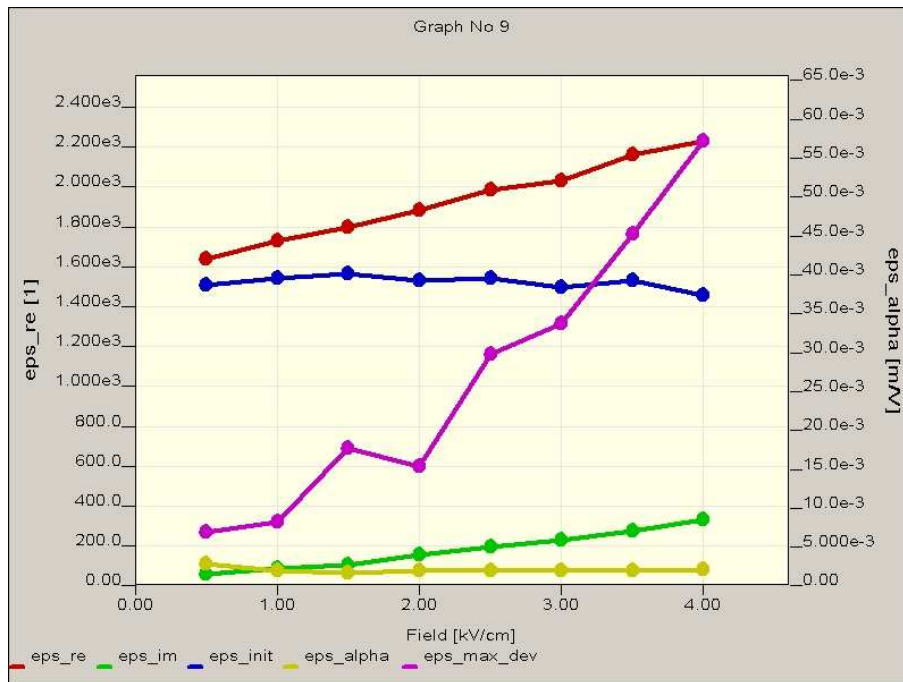


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- Rayleigh Analysis on hysteresis or displacement sub loops:



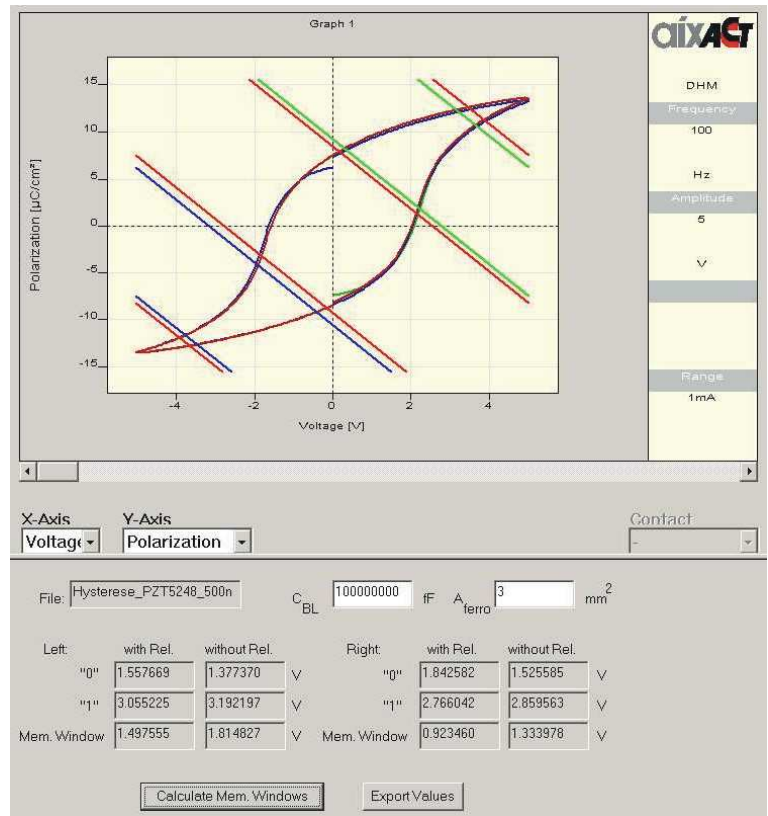
Summary of Rayleigh analysis with increasing excitation fields



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3. FeRAM Application: Memory Window

- Extraction of memory window parameter from hysteresis measurements on ferroelectric thin films



4. Database connection (optional)

- Configuration of uniform database integration between hysteresis measurement software (for direct data export into the database), the aixPlorer software, and the database itself (MySQL)
- Export of the characteristic values of a whole file, single measurement tables, or of the additionally calculated characteristic values into the database
- Convenient selection of specified data from the database and visualization as statistical distribution

