



Process monitoring with **aixDBLI**

aixDBLI

Our aixDBLI tools are among our most advanced modular measurement systems. They let you measure the change in thickness on thin, piezoelectric films quickly and reliably. Based on the aixPES system, it continues the modular design concept which results in two main system lines: The research line tools focussing on high flexibility and modularity and the industrial line tools focusing on a high automation level and high reliability and reproducibility. Both lines have the well approved double beam technique in common.



Research Line DBLI

The DBLI technique ensures measurements of thin film thickness changes under electrical excitation with a proven accuracy (x-cut quartz) of 0.2 pm/V.

Due to the differential measurement principle the influence of sample bending is eliminated, which is the major obstacle using atomic force microscopes (AFM) for these types of measurements.

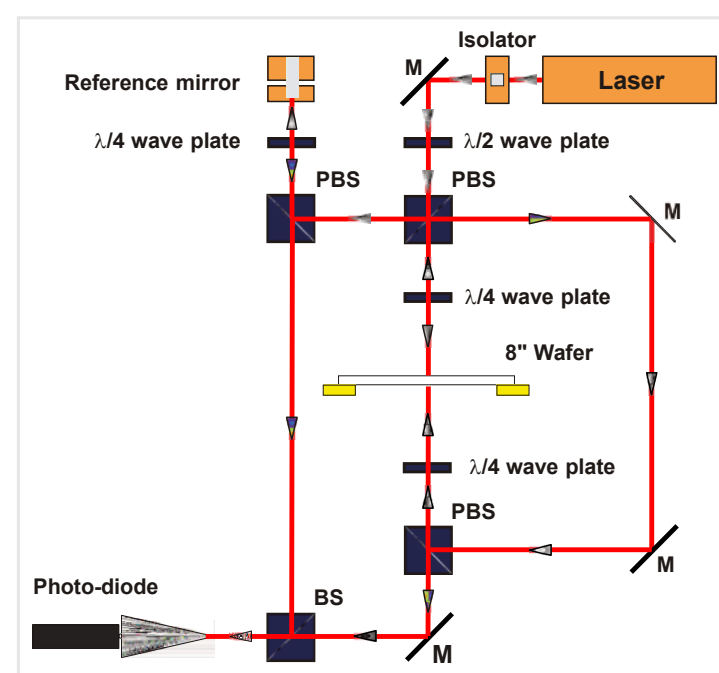
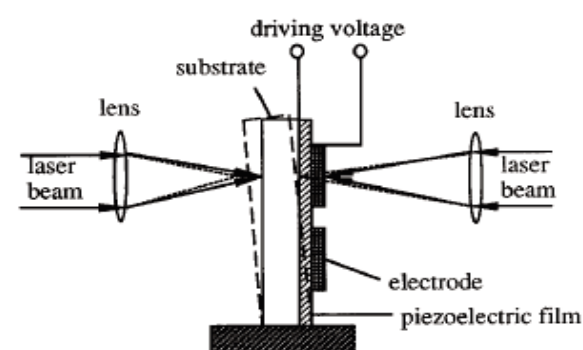
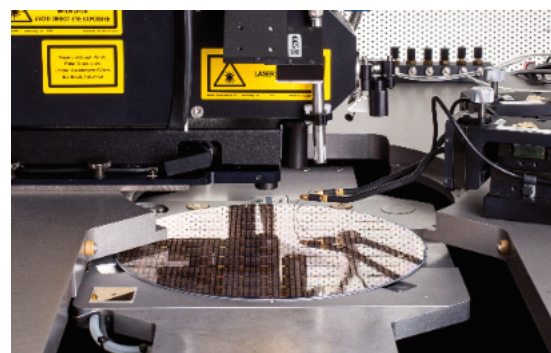


Industrial Line DBLI

The Method

The principle of the double interferometry was published by N.Setter group at EPFL in 1996. The basic setup only allowed a vertical sample handling. Thus it was useless for industry applications. aiXACCT transformed this basic idea into a full automated production tool that is able to handle 8 inch wafer. In addition, the systems have an ultrafast acquisition time of a few seconds for a single measurement. Based on a new data acquisition algorithm, the measurement speed is enhanced by a factor of 100.

So it takes only few seconds to derive the d_{33} parameter with a unique resolution. This enables the tool not only for process optimization but also for production control.

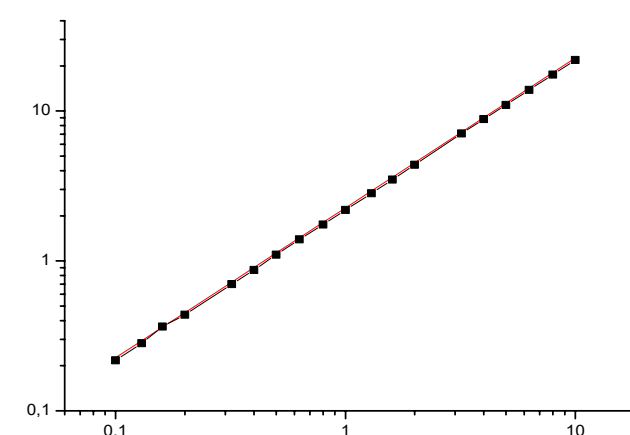


Unique Accuracy

The high resolution and accuracy of the tool is proven by x-cut quartz. The x-cut quartz has a stable and well known piezo coefficient which is linear over the complete voltage range. The graph shows the literature data (red line) and the measured data using the DBLI tool (black line).

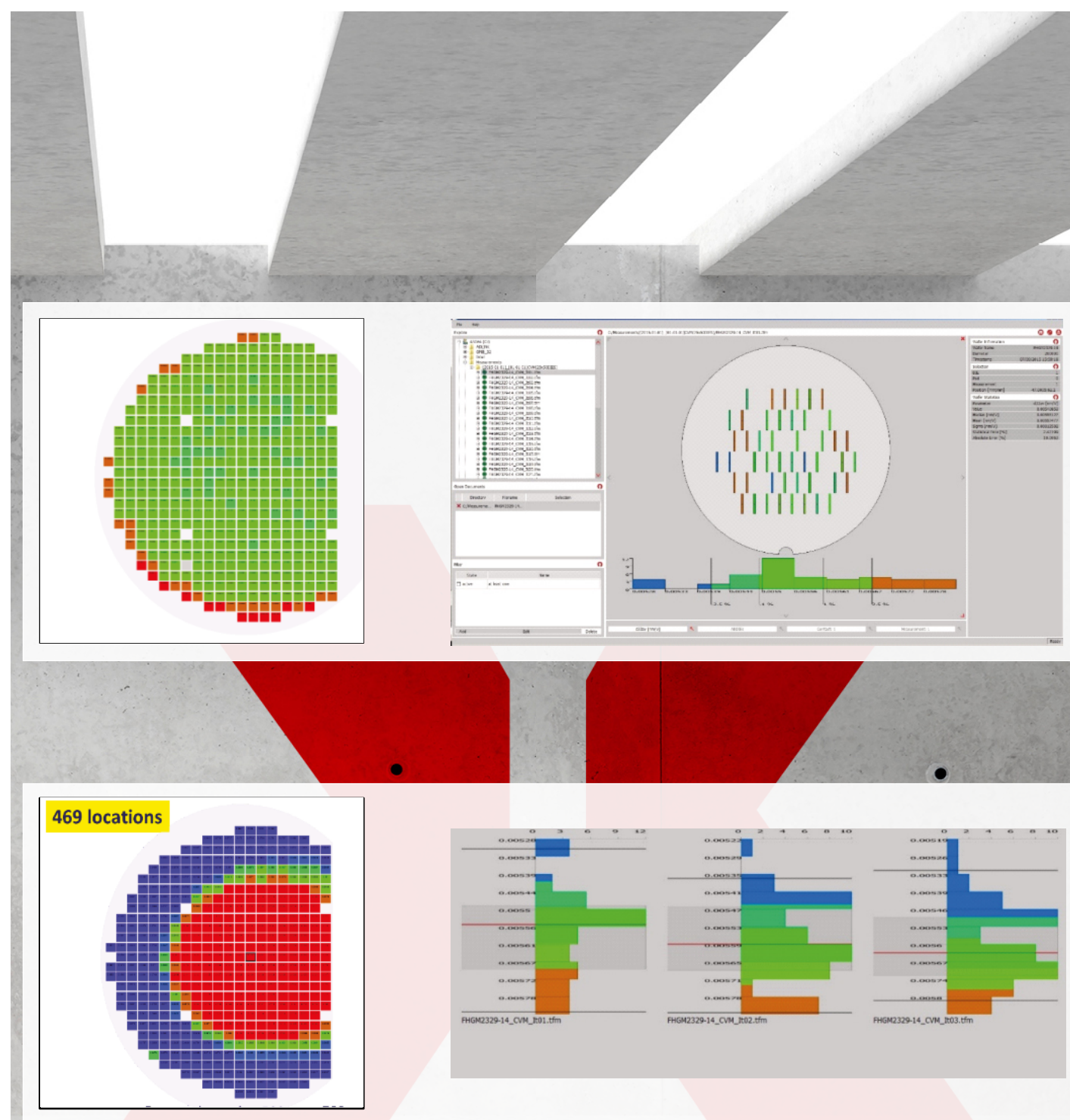
We are able to measure the piezo coefficient of 2.3pm/V with an excitation voltage of 0.1V, which corresponds to a an absolute displacement change of only 230fm!

This ensures a unique reproducibility of the tool. The repeatability is proven by 5 days test during installation.



aixPERT Software

Due to the large amount of parameters that can be measured with the tool like d33ls, d33av, e31ltt, leakage, C(V) etc. it is necessary to have a tool that allows a quick and easy handling of these data. Our aixPERT tool offers statistical evaluation and the visualization of wafer mapping.



Customer Statements

“With the DBLI technology we were able to optimize our process to 1% homogeneity within six month”

Lead engineer, Seagate Technologies, HDD-Industry, USA

“We use DBLI technology for quality control during production in order to guarantee excellent quality of our coated wafers to our clients!”

Project Head, Hitachi Cable, Foundry Service, Japan

“The DBLI technology allowed us to distinguish between film reliability issues and device failure.”

Lead Engineer, Seiko EPSON, Printer Industry, Japan

“With aixACCT we have found a reliable partner for characterizations from the prototype to the product. This helps us in our fast and goal-oriented product development”

CTO, USOUND, Andrea Rusconi

aiXACCT Systems GmbH

Talbostraße 25
52068 Aachen, Germany

Phone: +49(0)241475703-0

Fax: + 49(0)241475703-66

E-Mail: info@aixacct.com

Web: www.aixacct.com

