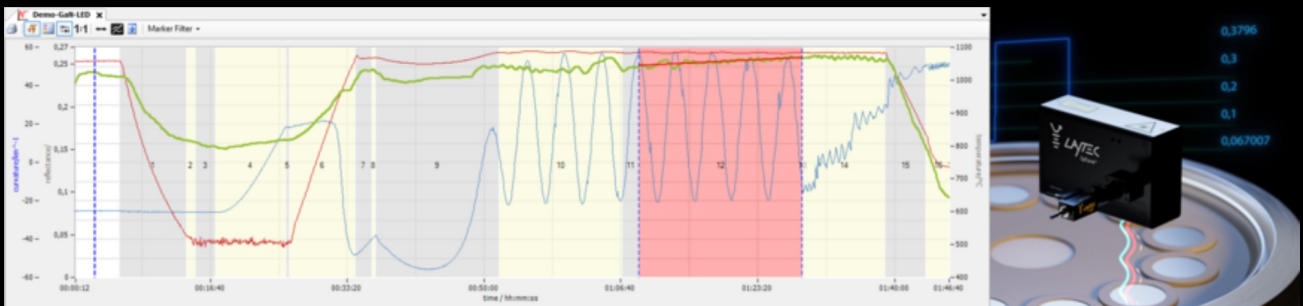


Vol. #5 of EpiNet®'s "Algorithm Deep-Dive" series

Getting the best out of your LayTec data: Learn how to analyze your in-situ data most efficiently!

Welcome back to our new "Algorithm Deep-Dive" series! Here, we regularly introduce one of LayTec's advanced in-situ algorithms featured in our EpiNet® software in this newsletter and on [LinkedIn](#). The series is meant to help you to fully exploit the possibilities of EpiNet® to the benefit of your epi process.

Today, in the series' 5th volume, the functionalities of the **"Basic Math"** algorithm package within EpiNet® are introduced.



In contrast to the previously described fitting algorithms, the functionalities of the **"Basic Math"** package are particularly useful for a purely empirical analysis of epitaxial run data obtained with LayTec's **EpiTT** and **EpiCurve® TT**. This can e.g. be appropriate, if two runs shall be compared to each other or if material properties are (partially) unknown.

The **"Basic Math"** package is a compilation of math and data processing methods. With this package simple mathematical and statistical data analyses can be applied. Within this package, the BasicStatistics function can be used for calculating the following parameters of a certain amount of data (e.g. a fraction of a transient):

- Average
- Maximum
- Minimum
- Median
- Standard Deviation

All these values can be calculated either in one step or individually. In addition, it is also possible to calculate the Slope of a part of a transient. Furthermore, the **"Basic Math"** package also contains the sub-package Data Processing consisting of multiple methods to modulate data. Within this package, the user can choose between the following six data processing methods, of which some may have one additional input parameter:

- AdvancedNoiseReduction (removing noise from a transient)
- Shifting (shifting a transient by a certain time period)
- Multiply (scaling a transient with a chose factor; for reflectance, the condition $0 < R < 1$ still needs to be fulfilled)
- MedianFilter (filtering noise by replacing a certain number of data points by their median)
- SpikeRemoval (removing spikes from transients)
- DriftCompensation (compensating linear drifts of a transient)

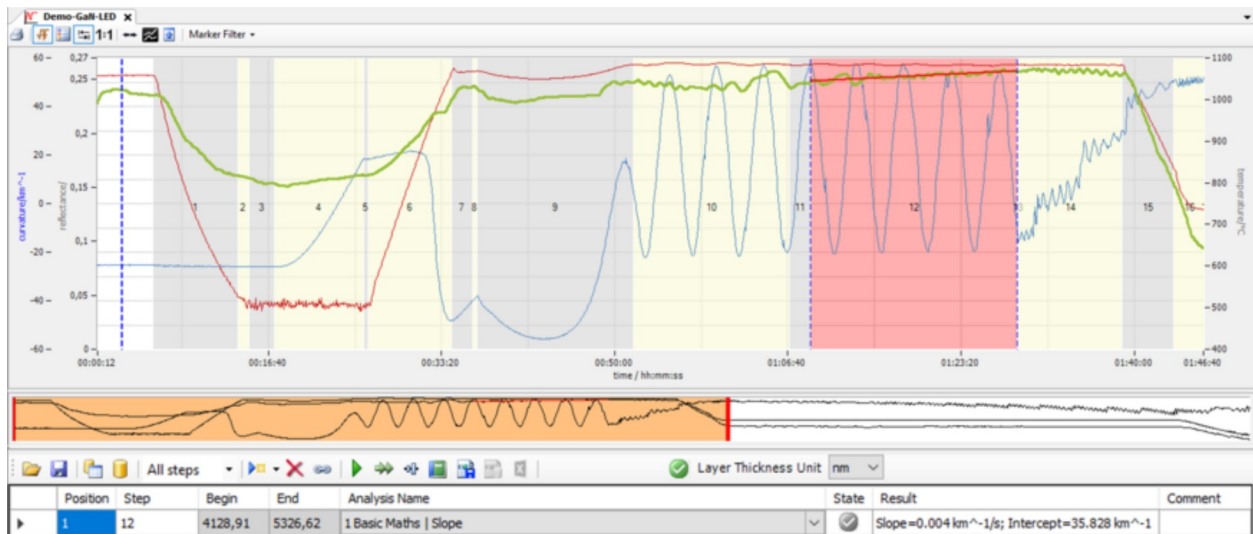


Fig. 1: Analysis screen of EpiNet® applying the “Slope” of the „Basic Math” package for deducing the gradient of the wafer curvature evolution from the curvature data line during the process step marked in red.

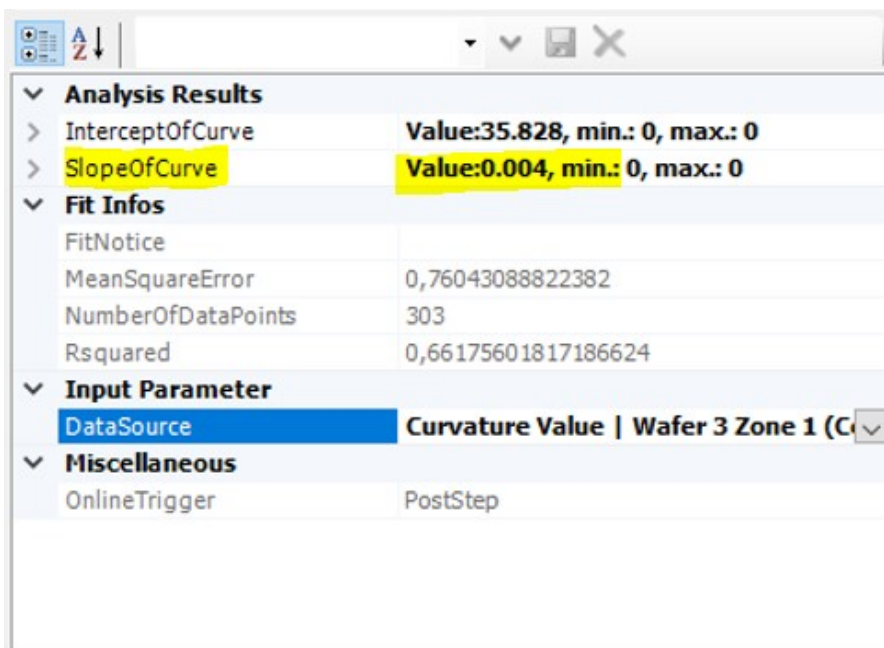


Fig. 2: Results window displaying the slope value deduced from the process step marked in Fig. 1

Usage ideas and alternatives:

Some examples for application of the above mentioned functionalities include among others:

- Applying DriftCompensation for eliminating the superimposed drift caused by roughness from a transient and thus, enabling growth rate fitting of the oscillations. Alternatively, it can be used for making the growth rate (oscillation

period) of two identical runs experiencing different slopes comparable.

- Applying AdvancedNoiseReduction or MedianFilter for reducing noise and thus enabling a more precise growth rate fitting.
- Applying Shifting to compare two identical process steps from two runs, for which the preceding steps have been carried out at different growth rates.

User instructions can be found in the manual and can be obtained via info@laytec.de
Reference data is available in **EpiNet®**.

Please feel free to contact our support team via info@laytec.de for further introduction in a dedicated EpiNet® training or for receiving sample data for exploring the possibilities of the algorithm on your own. Follow us on **LinkedIn** and stay tuned for further "Algorithm Deep-Dives" in our upcoming posts!

Introducing EpiNet® 2024 for office!

Exciting news!

Analyze your epi-run data conveniently from the office, independent of production schedules. Replay run data, deep dive into color plots and more.

Find out all details and features in our **Flyer**.



Key features:

- Replay your data with different RunTypes.
- Create detailed analysis recipes and test them on an actual measurement run.
- Gain full knowledge about your data.
- All information unplugged from measurement PC

- Import created data on measurement PC

Learn more about EpiNet® [here](#).

Another EpiX® C2C mapping station has been picked up at LayTec and travelled to its final destination in Asia!

Many thanks to our colleagues for ensuring that the tool arrives safely at our customer!

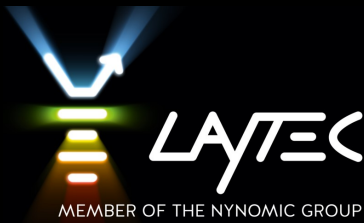


The **EpiX® C2C tool** is a cassette-to-cassette white light reflectance and photoluminescence mapping station for compound semi production epi-wafers, be it device structures based on GaN, GaAs, InP or any other compound semiconductor material.



With its unmatched low spectral noise, absolute accuracy and 2D measurement homogeneity, it renders precise analysis results that enable classification on the die-level.

Additionally, using wafer-specific EpiNet® MOCVD epitaxy analysis results, even complex device stacks can be analyzed to obtain the 2D profiles of critical layer thicknesses and compositions. These results, in turn, are used to facilitate sub-nm precision endpointing with LayTec in-situ metrology for plasma etching.



[Our website](#)

[Events](#)

[Support](#)

LayTec AG

Seesener Str. 10-13, 10709 Berlin

Tel.: +49 (0)30 89 00 55-0

Fax: +49 (0)30 89 00 55-180

info@laytec.de

www.laytec.de

Management Board / Vorstand: Volker Blank, Dr. Kolja Haberland
Chairman Supervisory Board / Aufsichtsratsvorsitzender: Fabian Peters

You've received this e-mail from us because you've subscribed to our newsletter

[unsubscribe](#) | [view in browser](#)

[Click here to unsubscribe from the mailing list.](#)