LEAP®
Automation
Packages

Automate your Atom Probe analysis
Accelerate your time to knowledge

Automated Sample Alignment Package
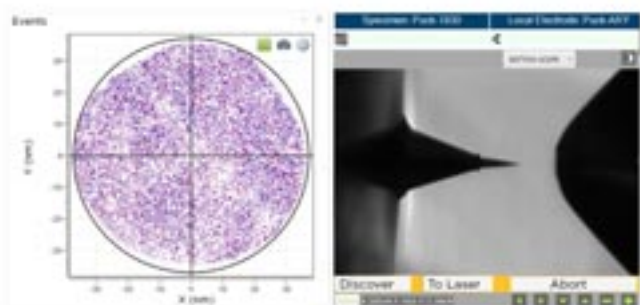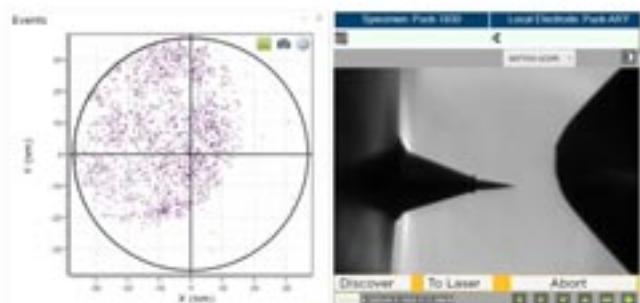
Align your microtips at the push of a button.

Included in Package 1:
- **Automatic microtip alignment**
- **Automatic alignment optimization**
- **Auto local electrode testing**

The Automated Sample Alignment Package greatly improves the ease-of-operation of your Atom Probe, reducing the training required for new users and the support needed for infrequent operators.

The data quality benefits from consistent, optimized alignments and frequent local electrode monitoring enabled by the push of a button. The increased frequency of the simple automated test allows local electrode quality to be actively monitored, such that any loss of performance can be preempted, and data quality maintained.

Assessment of the hit pattern on the detector to optimize the alignment.

Application Expansion Package

Gain a deeper understanding of your samples.
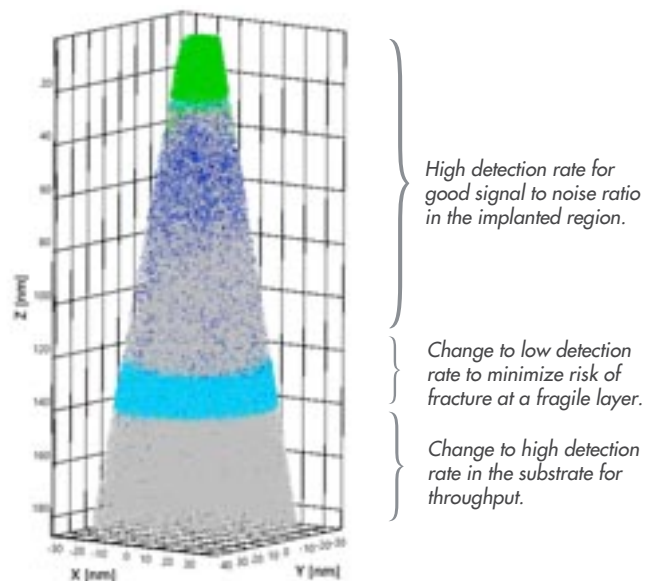
Includes all Package 1 features:
- **Automatic microtip alignment**
- **Automatic alignment optimization**
- **Auto local electrode testing**

Plus:
- **Scripted acquisition**
- **Tool-to-tool matching (TTTM)**
- **Thirty hours of support**
- **One box of ten, 25-specimen FT arrays**
- **One box of ten, 25-specimen PS arrays**
- **Ten 25-specimen holders**

The Application Expansion Package offers all the benefits of the Automated Sample Alignment Package and adds essential automation features to improve measurement consistency and control.

The TTTM feature corrects subtle laser spot size variations to ensure improved long-term instrument stability and enhanced statistical process control, allowing consistent recipes over time and across different tools. The scripted acquisition feature allows optimization of data quality, yield, and throughput by triggering custom acquisition parameter changes in response to the live data stream.

High detection rate for good signal to noise ratio in the implanted region.

Change to low detection rate to minimize risk of fracture at a fragile layer.

Change to high detection rate in the substrate for throughput.

The Comprehensive LEAP Automation Package

Run your Atom Probe analysis in continuous unattended mode.

Includes all Package 1 features:
- **Automatic microtip alignment**
- **Automatic alignment optimization**
- **Auto local electrode testing**

As well as all Package 2 features:
- **Scripted acquisition**
- **Tool-to-tool matching (TTTM)**

Plus:
- **Project plan**
- **Chain acquisition**
- **Sixty hours of support**
- **Ten boxes of ten, 25-specimen FT arrays**
- **One box of ten, 25-specimen PS arrays**
- **Twenty 25-specimen holders**

To truly unlock the throughput of the LEAP, the Comprehensive Automation Package provides the infrastructure to tie all of the automation features together enabling continuous unattended Atom Probe analysis.

A Project Plan consists of a set of predefined recipes encompassing all steps of the APT project, from data acquisition to reconstruction and analysis, saving tremendous time and effort. All recipes are stored in a library and can be loaded at any time.

Acquisition recipes are fully compatible with the scripted acquisition feature, allowing easy monitoring of the specimen and intelligent variation of all acquisition parameters. The Chain Acquisition feature enables increased levels of LEAP utilization: depending on the time per experiment, chain acquisition on a 25 specimen array can keep a LEAP operating unattended from 12 hours (overnight) to over 48 hours (through a weekend). Acquisition recipes and scripts can be varied across specimens on the array, allowing the unattended operation to be optimally configured for different specimens with different analytical objectives.

Chain acquisition:
1. *Simply choose the desired specimens and build the acquisition chain in any order.*
2. *Launch alignment and acquisition of the first specimen.*
3. *Once this is complete, alignment and acquisition of the next specimen follows automatically.*
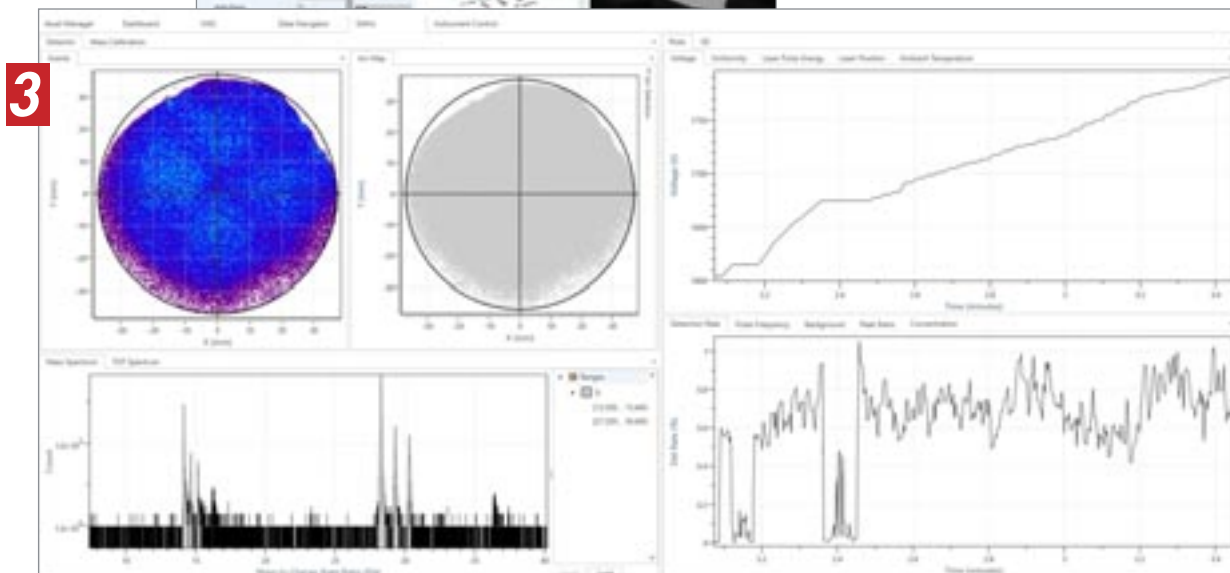
LEAP®
Automation Packages

Whether in industry or in academic research, Atom Probe users need to acquire data rapidly and efficiently. To address the growing demand for fast and unattended analysis of large numbers of samples, CAMECA introduces a set of automation packages for the LEAP 5000 Atom Probe.

From sample alignment to scripted and chain acquisition or tool-to-tool matching, our three packages address several levels of automation requirements. They significantly increase the instrument's ease-of-use, improve measurement stability, provide tools to optimize data quality and yield, and greatly improve productivity.

All three packages are available as options to the AP Suite 6.1 software platform.
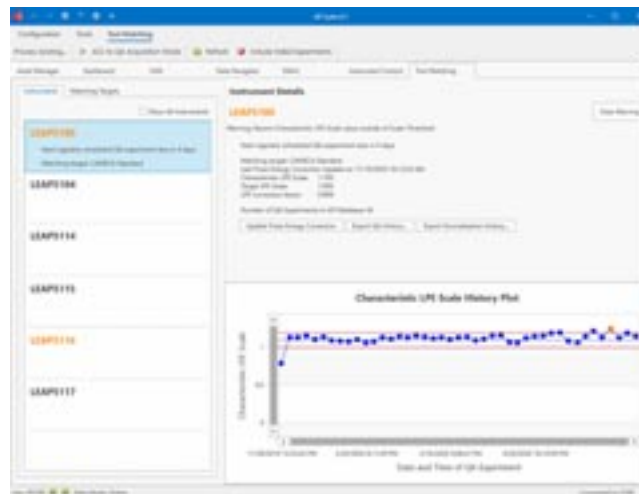
The new tool-to-tool matching feature enables easy and efficient monitoring of multiple tools, high productivity and data consistency.

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