

PGI Dimension - AAU

Spike removal

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Introduction

When analysing a trace in the Aspherics Analysis Utility (AAU), spikes can appear that are not part of the aspheric surface. These spikes could be dust, dirt etc. and should be excluded from the analysis.

Note that large, wide spikes may significantly affect the form fit. As well as the current manual method there is now an automatic method. This technical note explains both methods and the advantages of using the new automatic method.

Manual method

This can be done using the 'Exclude from Form-Fit' button in the AAU (Figure 1). When using this method the spikes have to be removed individually and different operators could exclude a different numbers of spikes as this is open to interpretation.

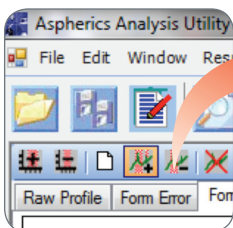
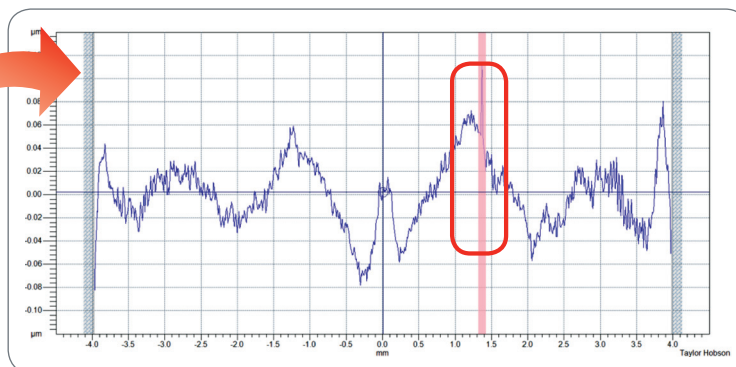


Figure 1: Removing spike using 'Exclude from Form-Fit' button



Automatic method

The AAU can also use an automatic spike removal function which allows the user to define the width and height of a spike and automatically remove it. This makes the spike removal process more repeatable and less subjective. It also saves time.

Procedure

- 1 Open the trace and analyse as normal (Figure 2).

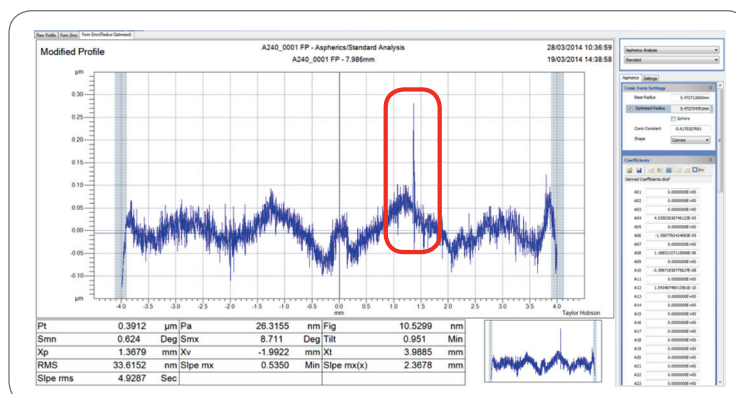


Figure 2: The analysed trace showing the spike to be removed

- 2 Apply a filter on the aspheric trace (Figure 3). This will also affect spikes.

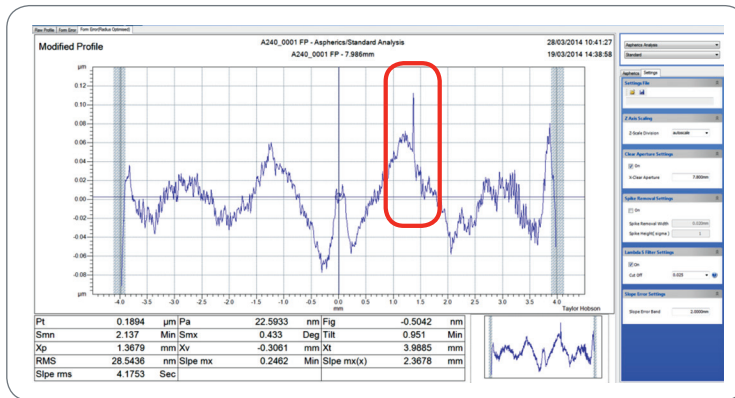


Figure 3: The analysed trace with a 0.025 mm filter applied

Spike removal settings are available in the Settings section. The user should switch on this setting and define the spike by setting up the spike removal width and spike height. The spike height is a relative value to the RMS of the residual profile (Figure 4), defined as a sigma value. Typically start with a sigma value of 3. Internally the spike removal function will use the Gaussian robust filter to separate the form data. The spike removal width is used as the cut-off length in this filter. Normally the spike removal width should be three times bigger than the width of the spike.

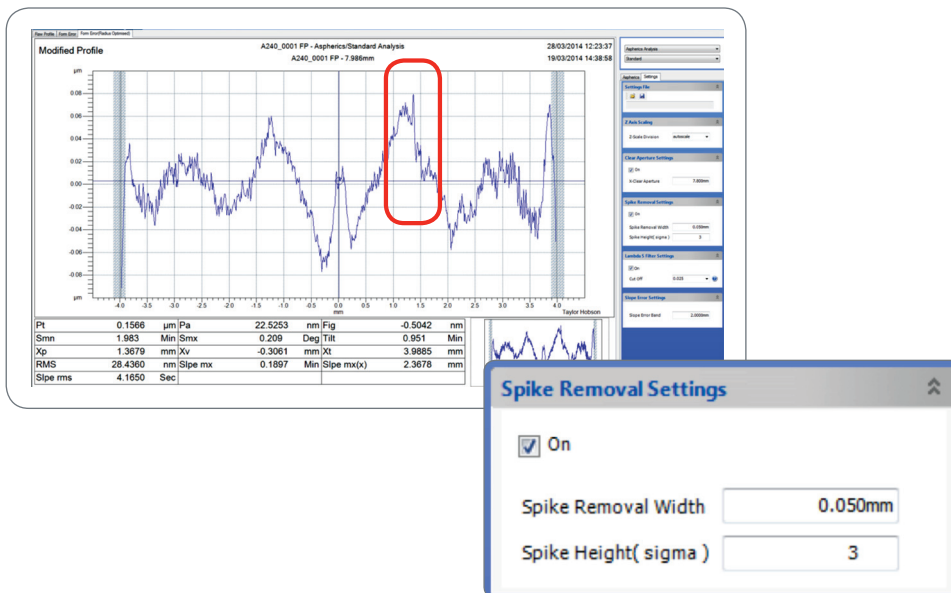



Figure 4: Spike removal settings turned on and a spike removal width and height entered

Adjust the Spike Removal Width and Spike Height until removed, keeping the form and detail.


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