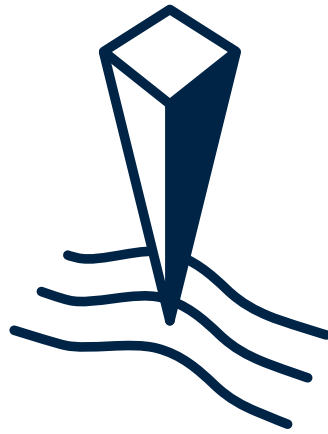
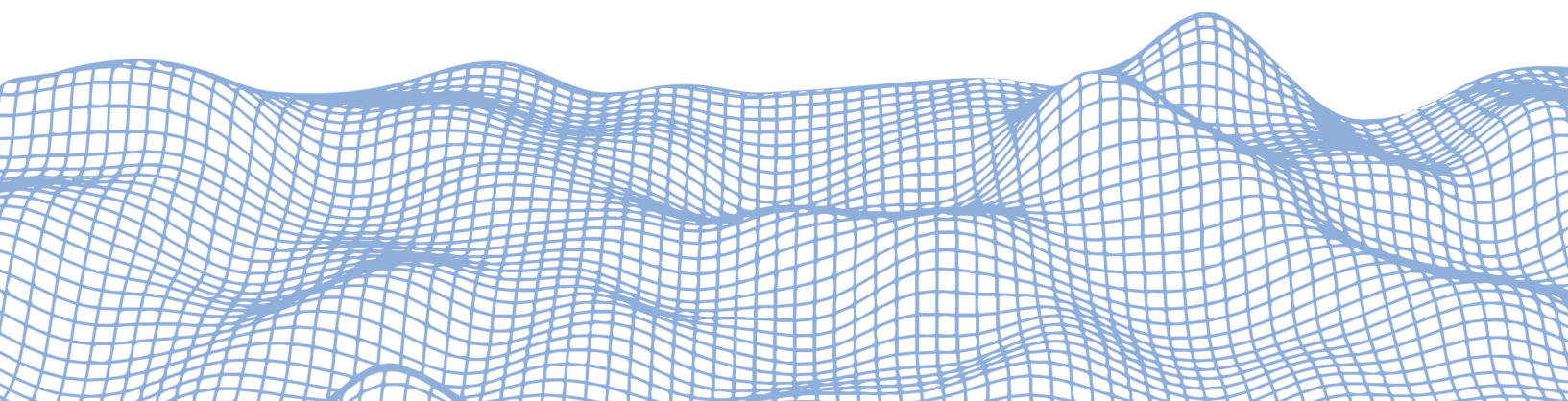
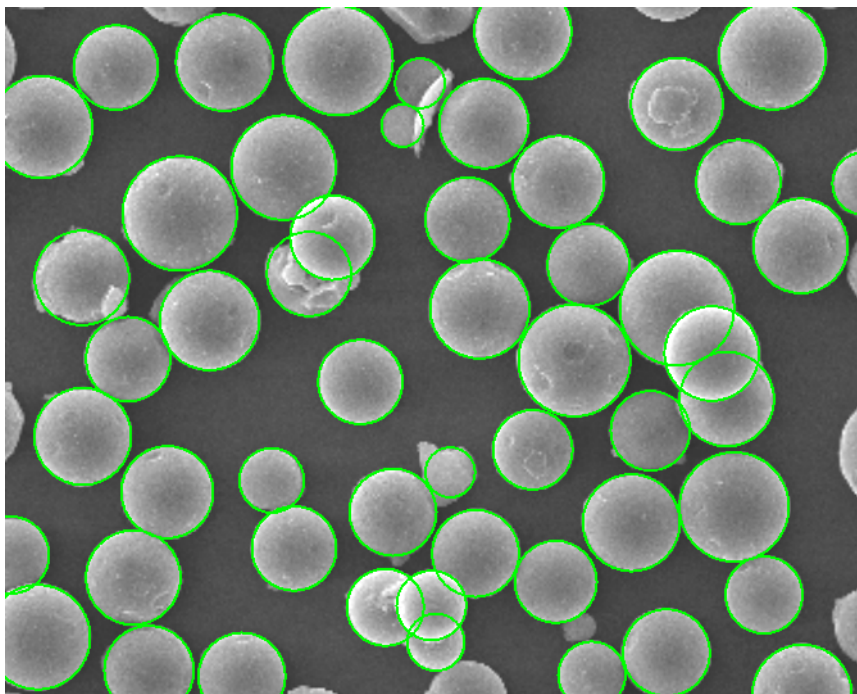


SPIP 6.7



A giant leap for particle size analysis

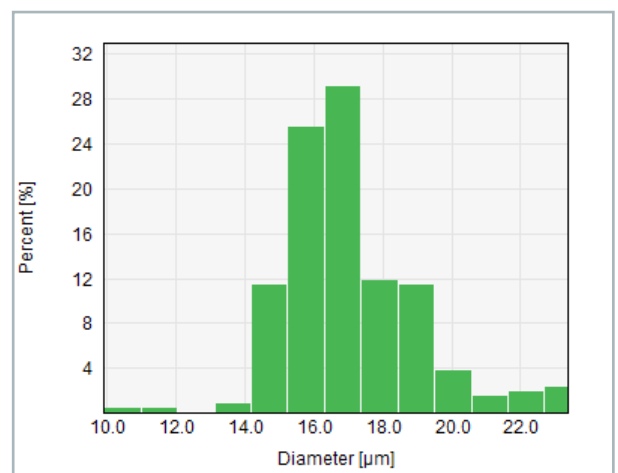
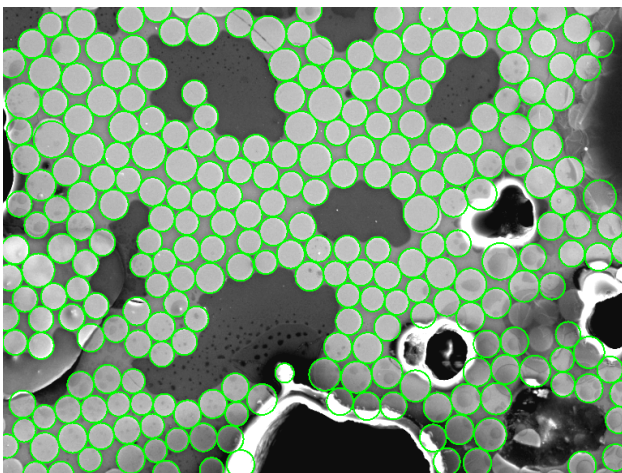
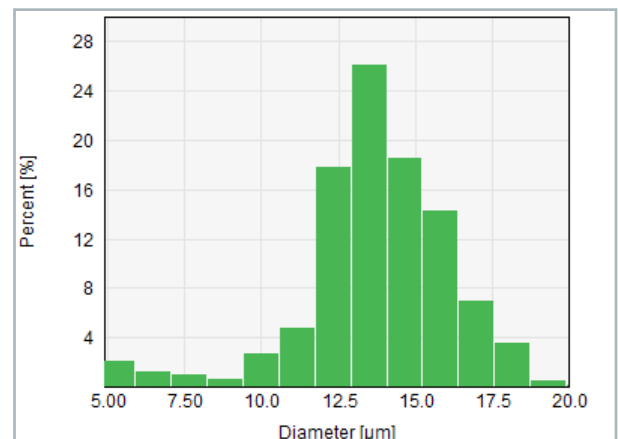
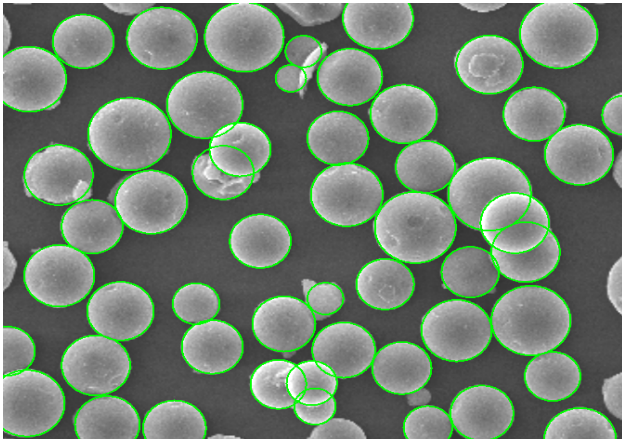
With the new and improved detection and splitting options SPIP™ version 6.7 has taken a giant leap towards easy and robust particle analysis in SPM and SEM images.



Circle Detection

With the new Circle Detection method SPIP™ 6.7 can find circular image features even when the image is noisy, the contrast is weak and when the particles are connected or overlapping.

This makes it possible to perform particle size distributions or particle counting on images where usual segmentation techniques will not be successful.

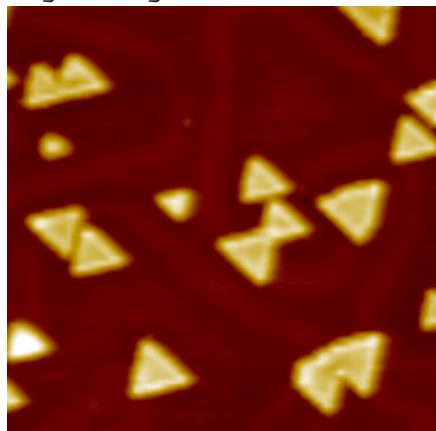


Top: Microspheres. Bottom: Fiber glass composite. Courtesy of Force Technology

Automatic Particle splitting

When particles are dispersed onto a substrate they are likely to agglomerate in small clusters of two or more adjoining particles. Each particle cluster will often be detected as a single feature. To compensate for this, SPIP™ 6.7 offers two automatic splitting options that can split such clusters into separate particles.

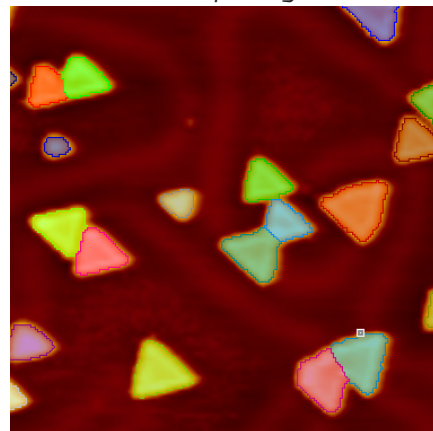
Original image



Plain threshold detection



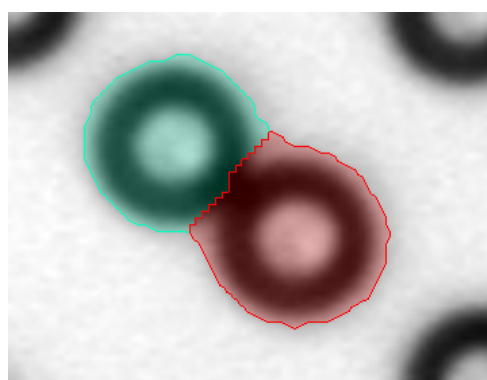
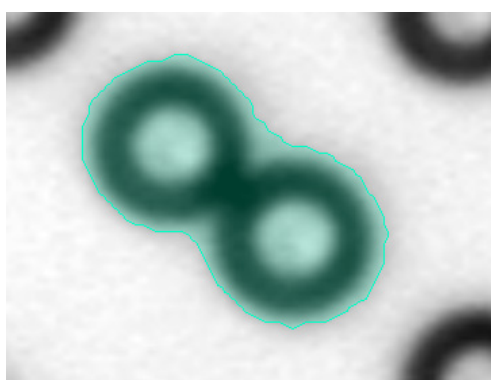
With automatic splitting



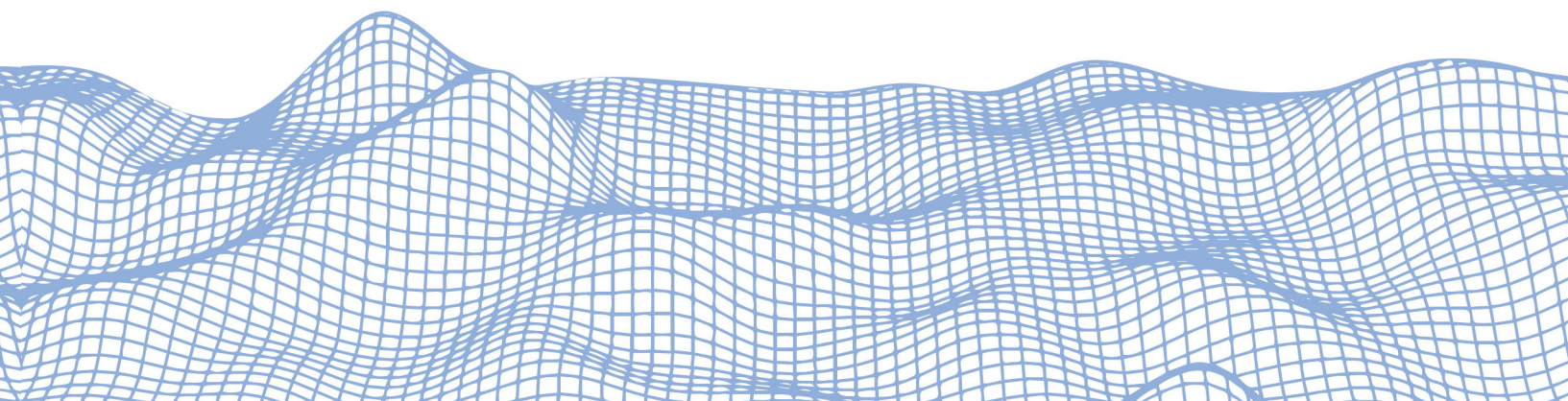
STM image of MoS2 nanoclusters on a gold Au(111) substrate. Courtesy of iNano, University of Århus.

Manual Particle Splitting

For manual splitting of particles, the particle cutting tool has been improved with a magic splitting tool: Select one or more shape(s), click the button, and the shapes will be separated!

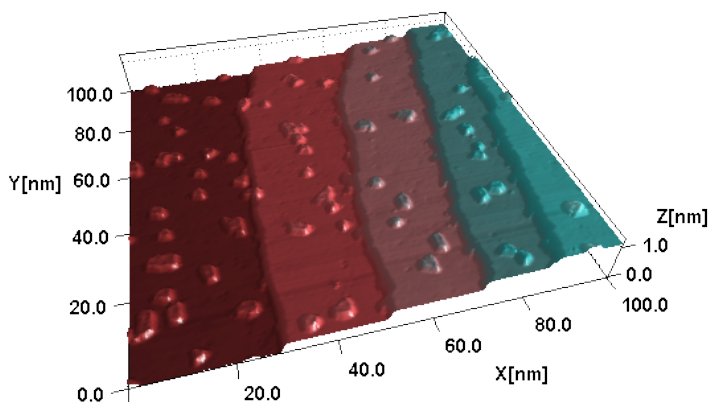
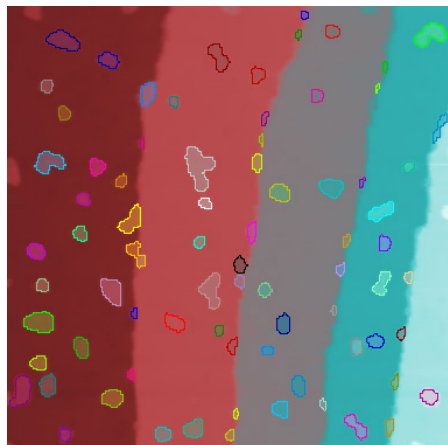


Particle splitting using the new magic splitting tool: Just select one or more shapes and click the tool



Improved watershed detection algorithms

The multi-scale watershed detection methods have been improved significantly for more robust detection in noisy images, including automatic merging of neighboring shallow features in accordance with ISO 25178-2.



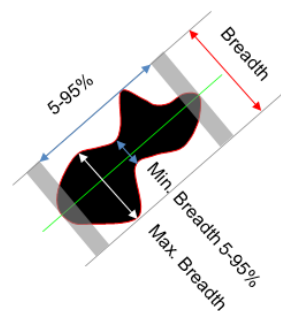
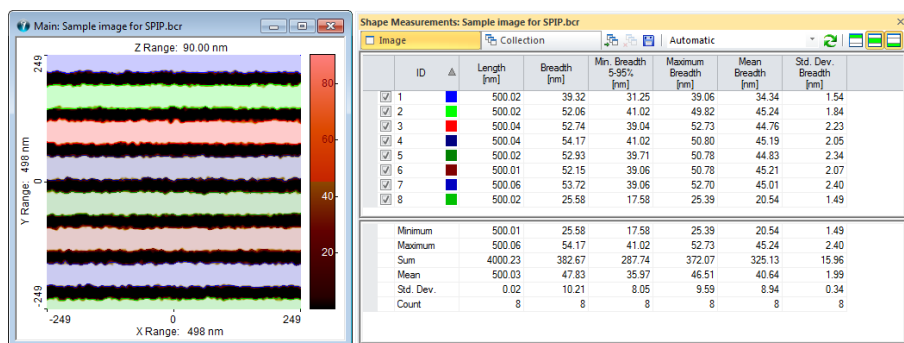
With the improved watershed particle detection methods it is now an easy task to for example detect particles on stepped surfaces. Image courtesy of Yun Liu, Dalian Institute of Chemical Physics.

New parameters

The Particle & Pore Analysis function is often used for finding and measuring other shapes than particles or pores, e.g the layers in sandwich structures or lines on substrates.

A new set of “breadth” parameters describes the width of a shape along its length direction for such features: The local breadth is calculated everywhere along the shape and from this, the minimum, maximum, standard deviation and mean can be reported. Hence for a line structure, all these parameters are reported.

In addition to reporting the projected area for particles, SPIP™ 6.7 also reports the “true 3D area” of particles found on height images, which is an important parameter for catalysts and adsorbent materials.



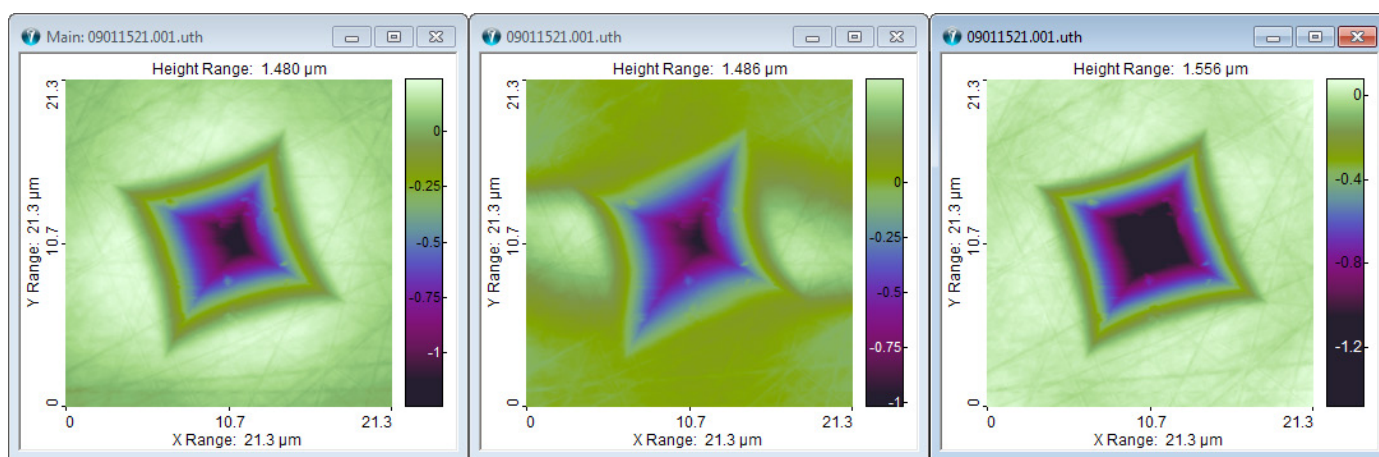
Automatic outlier masking in Plane Correction

Excellent plane correction results are achieved by masking outliers by thresholding them using the color scale clip markers, thus limiting the Z range used for estimation.

However, as this procedure requires user interaction, there has so far been no straight forward method for accomplishing the same results in a Batch Processing context. Now, plane correction settings can be saved with pre-adjusted color clip marker positions, so that outlier rejection is easily accomplished in Batch processing.

Moreover, a powerful automatic outlier masking option has been added. When this new option is enabled SPIP™ will automatically mask features sticking out from the background as an integral part of plane correction.

With SPIP™ 6.7 it has never been easier to achieve superb plane correction results, in particular with line wise leveling, which is frequently used in SPM for eliminating line wise distortions.



Original image of a nano-indentation mark

Line wise leveling without any masking

Line wise leveling with automatic outlier masking.

Do you want to try it?

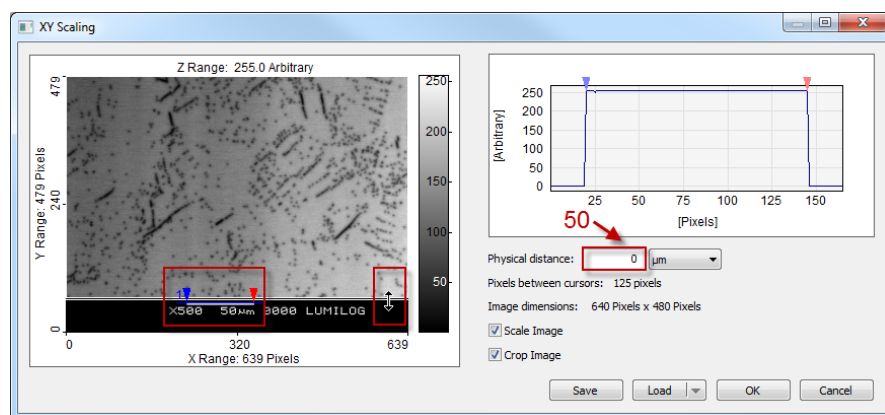
Download Free Trial
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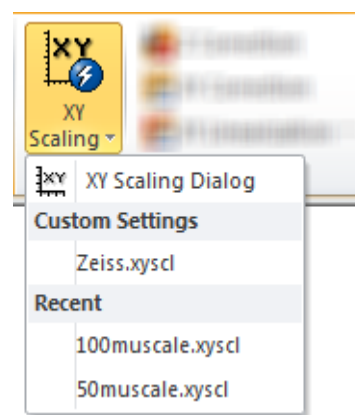
Easy scaling of SEM and TEM images

Besides reading the XY scaling information when available in EM images, including the .dm3 format, the tool for scaling SEM images have been made easier and faster to use.

In SPIP 6.7 the tool pops up in a temporary dialog and supports automatic cropping in order to remove the big information bar that is often present in SEM images. Scaling and cropping using previously defined settings can be applied directly from the ribbon, and it has therefore never been easier to analyze EM images!



The new XY Scaling Dialog featuring automatic cropping. The scaling bar is typically identified automatically making it easy to set the XY-scaling factor.

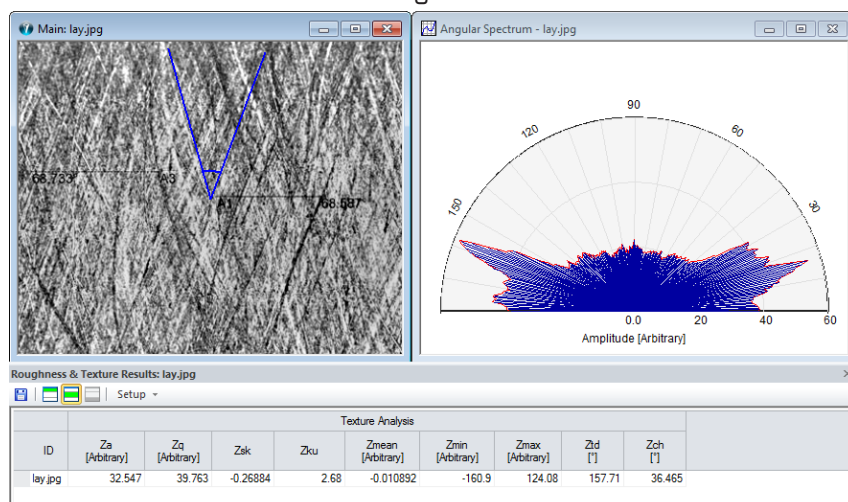


Saved settings can be applied by the two-click QuickLaunch button.

Texture Analysis for SEM images

The Roughness analysis module has been extended with "Texture Analysis". This means that a subset of statistical parameters and charts can be calculated for non-topographic images, such as SEM images or SPM image channels which do not describe height.

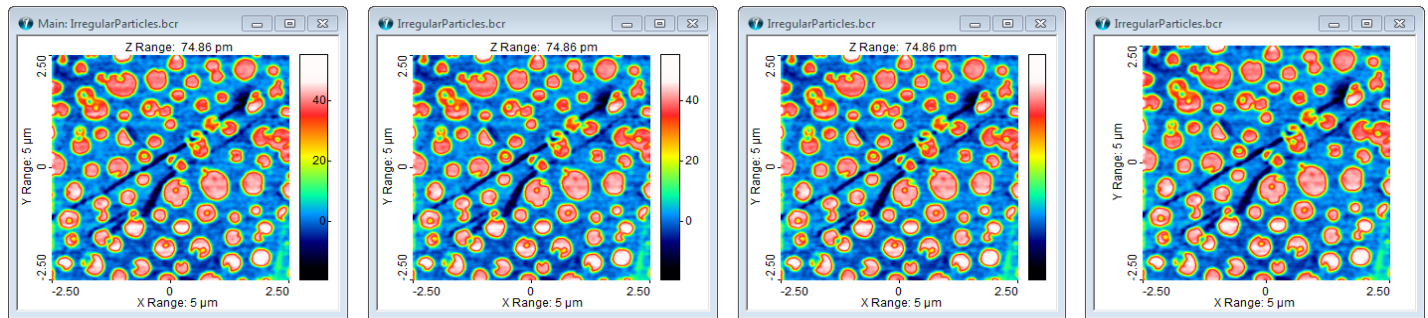
Texture analysis includes e.g. first order statistics parameters, mean, max, min but also advanced parameters such as correlation length, texture direction a cross hatch angle and more.



Texture analysis of an optical micrograph of a cross ground surface.

Visual improvements

- Photographic images and SEM images are by default displayed in gray scale.
- Color scale labels can be adjusted in size and displayed next to the color scale itself as an option. Perfect for presentation and publication!
- Images can be displayed without color scale, but keeping the XY axes.
- A contrast brightness function has been added in order to make it easy to adjust brightness and contrast when the color scale is not displayed, e.g. for SEM users who may not want to see the color scale.



Labels inside (default)

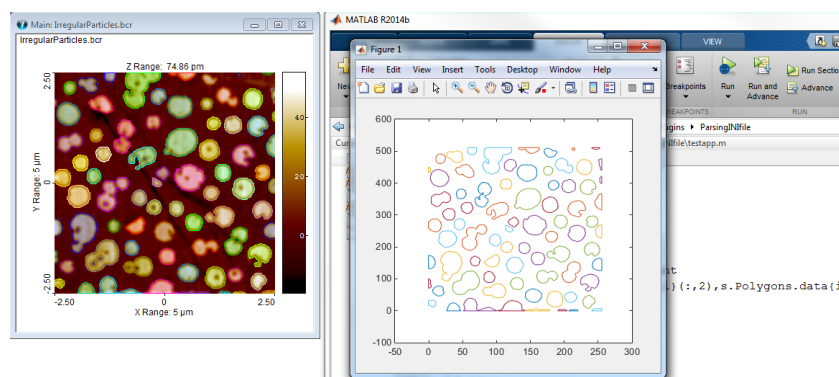
Labels outside

No labels

No colour scale

Other powerful tools and improvements

- Morphology filters.
Configurable dilation, erosion, opening, and closing gray scale morphology filters have been added, and are particularly useful for preprocessing complicated images before particle and pore analysis.
- Measure Shapes (e.g. detected particles) can be exported and imported, for example in order to save the result of a really good detection, for quickly applying a handful of manually created Measure Shapes or for processing in e.g. MATLAB.
- Histogram analysis has a "binarize" function for easy thresholding of images, for example for use with particle analysis in cases where users want full control over all segmentation steps.



Detected particles, "shapes", can now be exported and for example be processed in MATLAB. Processed shapes can even be imported back into SPIP™.

Help & Support

We are always there
to help you at
support@imagemet.com

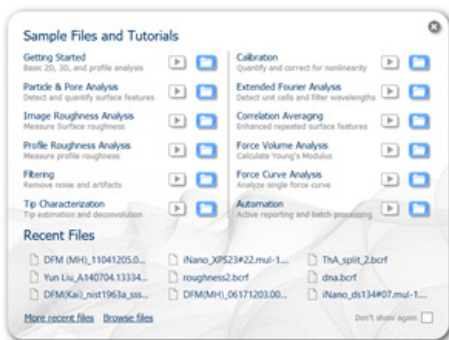
Free support & Software Updates

Our experienced Customer Service and Technical Support team is available to answer any queries and requests. Additionally, a worldwide network of knowledgeable distributors ensures that local assistance is always nearby.

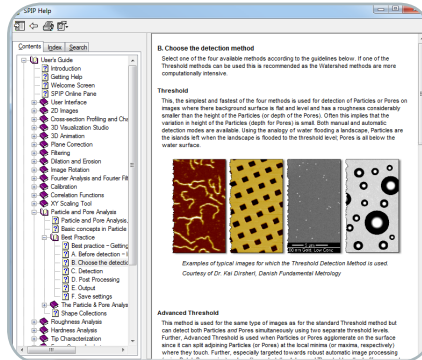
Every SPIP™ license includes one year of free support and software updates, which can be extended according to customer wishes.

Moreover, the software is designed with an online help function, which is accompanied by a range of video tutorials.

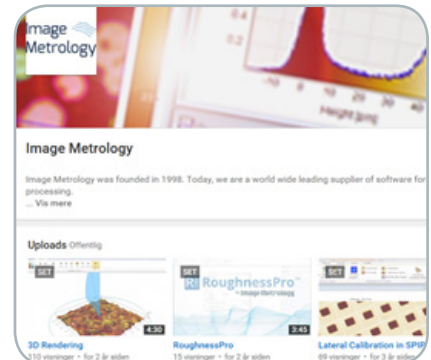
Welcome screen with examples



Comprehensive Help function



Online video tutorials



University & Network Installation

With more users in the same group, SPIP™ user groups can obtain a customized solution for their university or company.

Contact us to learn more about what could be the optimal solution for your company or institution!



Want to try it out?



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