

Import Images into VirtualLab Fusion

Abstract



Many important physical information, such as height distributions of microstructures or the field information in panel sources, are saved in form of images. Hence, to make these information available in VirtualLab Fusion, we want to demonstrate the import toll for image files, such as PNG, JPG or BMP.

Import of Images



Wyrow

You can access the import tool by navigating to File > Import > Import Image File. It supports various custom image data formats like bmp, jpg, or png.

Import Image Files



VirtualLab Fusion can import images into three primary data types:

1.Data Arrays: This versatile data type can be converted into various formats and is highly flexible. Notably, RGB channels are condensed into one dimension through color table mapping.

2.Harmonic Field (Set): This type represents light distribution in terms of amplitude and includes additional tools for propagation and detection within the main window.

3.Chromatic Field Set: Representing radiant energy density, this data type enables the depiction of light in real or false color, akin to the capabilities of the *Camera Detector* or corresponding *Universal Detector Add-ons*.

Target Colors – Monochromatic Conversion



Monochromatic mode transforms the image into a single data subset. When applied to an image with R/G/B channels, users can choose to extract a specific channel, employ a custom color scale, or perform a *Grayscale* conversion.



monochromatic results with different color schemes

Target Colors – General Polychromatic Mapping



For General Polychromatic Mapping (applicable to both Harmonic Field Sets and Chromatic Field Sets), users can define the wavelengths and weights for the three channels, enabling the creation of arbitrary false color representations.





wavelengths: 473 nm, 532 nm, 635 nm weights: 3,1,1

wavelengths: 473 nm, 532 nm, 635 nm weights: 0.5,2,3

Target Colors – Real Color Mapping



For *Real Color Mapping* (also applicable to *Harmonic Field Sets* and *Chromatic Field Sets*), VirtualLab Fusion automatically configures the weights and wavelengths to produce a true color image.



Definition of Coordinates

Axis		y-Axis		
escription	x	Description	Y	
hysical Property			Length	
terpolation Method Dimensions	Cubic 6 Point ~	Interpolation Method Dimensions	Cubic 6 Point	~
Sampling Distance	✓ 211.69 nm	Sampling Distance	~ 2	11.69 nm
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ositioning		rositioning		
Center Around Zero N		Center Around Zero		
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-	ves are Zero	Center Around Zero age File Import: Profile_avatar_fil coordinate Properties ome properties of the coordinate Sampling Parameters	ower.png is are to be set here.	62 211.69 μm

Data arrays and chromatic field sets support custom axis definition, including name, sampling parameters, and interpolation method. For *Harmonic Field Sets*, users can specify sampling parameters.



Physical Properties - Unit

Image File Import: Profil	e_avatar_flower.png		×	Specifica
Subset Properties The properties of the d	Specifica descriptio			
🀴 Copy From				-
Subset # Description		Physical Property	Factor	
1 Irradiance		Power per Area	• 1	
		Miscellaneous Base Quantities and R Angles Radiometry Photometry Environment Densities Dimensionless Energy / Power Fields	eciprocals	Absorption Coefficient Area per Energy (Area per Energy) ² Energy (eV) Energy (J) Energy per Area Energy per Volume
/alidity: 🕑	■ Back	Next Finish Cance	Help	Power Power per Area (Power per Area) ²
				Power per Solid Angle Power per Solid Angle and per Are Power per Volume Volume per Energy (Volume per Energy) ²

Specifically for data arrays, users can also define the description and unit of its corresponding data.



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further reading	 Import of Text Files into VirtualLab Fusion Import of Bitmap file containing Height Data of a Microstructure into VirtualLab Fusion