OM images

This folder contains 49 optical images of a ROI, imaged from serial slices of Elicarb graphene/epoxy nanocomposites. The size of the images are 155 μm * 155 μm (372 pixel * 372 pixel). Open the images with ImageJ, the pixel size is included already. Slice thickness: average 322 ± 32 nm.

The 'background' image is an optical image of the corresponding epoxy slide.

OM maps

The folder contains OM concentration maps generated from the OM images. The 'Original_map_stack48.tif' is a 3D tif file containing all the 48 maps. The files ''mapping**' are individual images cropped from the stack and used for correlative study.

SEM images

This folder contains original SEM images captured at different magnifications. Each tif file can be opened in ImageJ, which contains 23 SEM images from serial slices.

In the 10kX folder, ''10kx.image23.align.tif' contains the registered image stack, '10kx.image23.align.preprocess.tif' is the registered and processed image stack, the image processing follows the methods provided in the manuscript.

Magnification	length	pixels	resolution
2kX	10,000 nm	73	137 nm/pixel
5kX	3,000 nm	55	54.55 nm/pixel
10kX	3,000 nm	110	27.27 nm/pixel
20kX	1, 000 nm	75	13.33 nm/pixel

Correlative analysis example - 10 kX

'3DOMcorrelated: *OM image stack after correlative analysis*
'3DSEMcorrelated'*: SEM image stack after correlative analysis*

Slice by slice

OM-**: *individual greyscale OM images used for correlative analysis*
SEM-**: *nidividual greyscale SEM images used for correlative analysis*
Landmarks1-:*** *landmark coordinates assigned in the process of correlative analysis*
See details https://imagej.net/plugins/bigwarp
Slicecorrelations.mpg*: video showing the slice by slice correlation*

Reconstruct files_Avizo

Reconstruction files used in Avizo

View

Snapshots of 2D and 3D views of the datasets.