



1 *Volume rendering of a realization of the Alton-dorf-Jeulin model*

2 *Simulated SEM image of the structure in 1*

3 *Orientation map for 2*

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## MAVIfiber2d

MAVIfiber2d is a software for geometric characterization of fiber systems based on SEM or optical microscopic images. MAVIfiber2d is particularly useful for the automatic measurement of fiber thickness based on SEM images. MAVIfiber2d does not rely on the user for the measuring step. Once the few parameters are set, fiber thicknesses and orientations and the cloudiness are determined automatically. That way, measurements are objective and reproducible.

### Fiber thickness analysis

- smoothing, contrast enhancement
- automatic measurement of fiber thickness in each fiber pixel without segmentation of individual fibers
- result: area or length weighted thickness distribution, export as csv file
- visualization: input image, result of pre-processing, thickness map

### Fiber orientation analysis

- measurement of local fiber orientation in each fiber pixel without segmentation of individual fibers
- result: area or length weighted orientation distribution, degree of anisotropy, preferred direction, export als csv-File
- visualization: orientation map (Fig. 3)

### Cloudiness analysis

Cloudiness is a weighted mean over 7 – 8 scales. The user can chose between preset weights or specifying them, as the weight of the results on the different scales depends highly on the specific application.

- result: cloudiness at all chosen scales, cumulated cloudiness, export as csv file
- visualization: cloudiness map for one scale