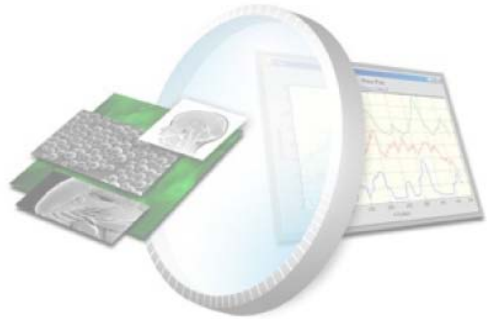
DIGITAL OPTICS
PRECISION DIGITAL IMAGING

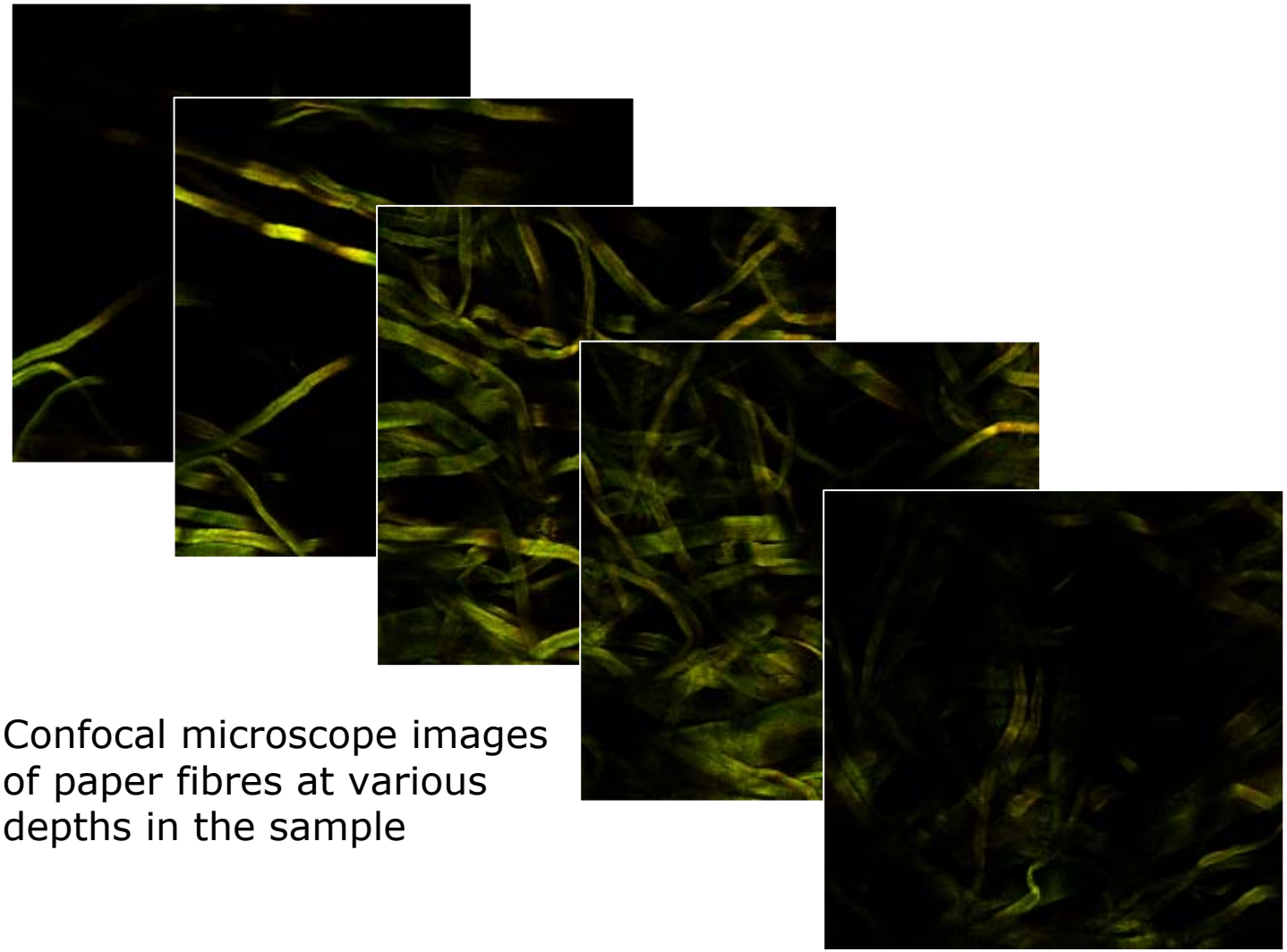


# 3D Imaging with V++

Example V++ application investigating the structure of paper and wood fibres, using 3D image stacks from a Leica confocal microscope.

The 3DV VPascal code was developed by Lloyd Donaldson,
Senior Scientist, Scion Research, Rotorua, New Zealand.

# Layers from confocal microscope

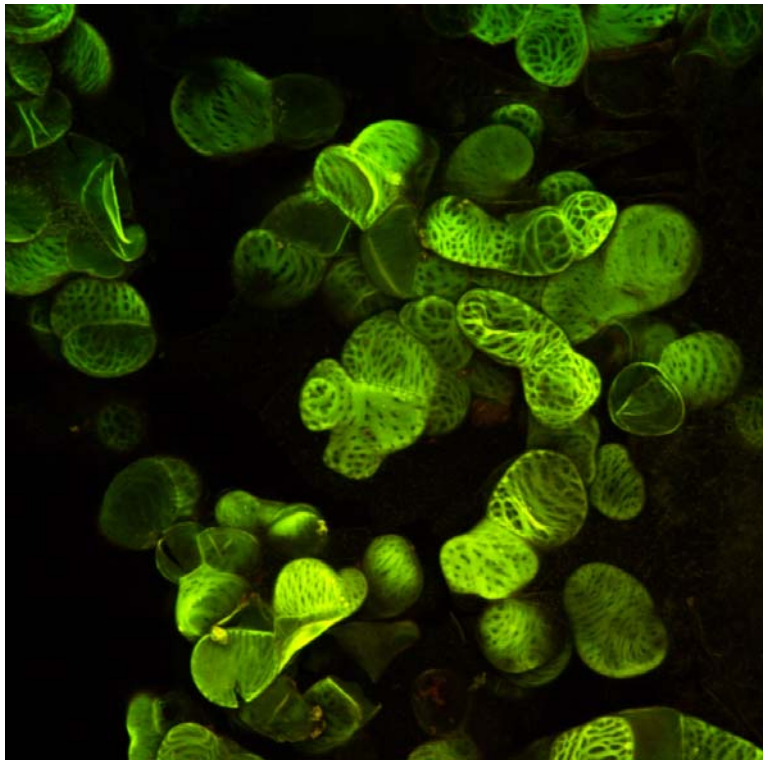


Confocal microscope images of paper fibres at various depths in the sample

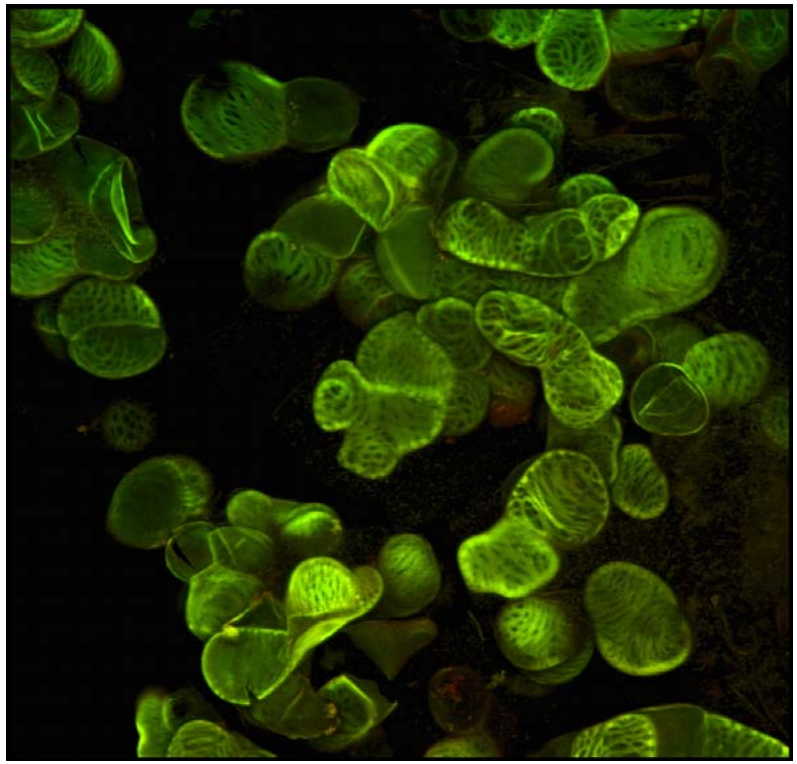
# Animated stack

Animated passage through image stack. Click to play movie.

# Projections using ensemble statistics

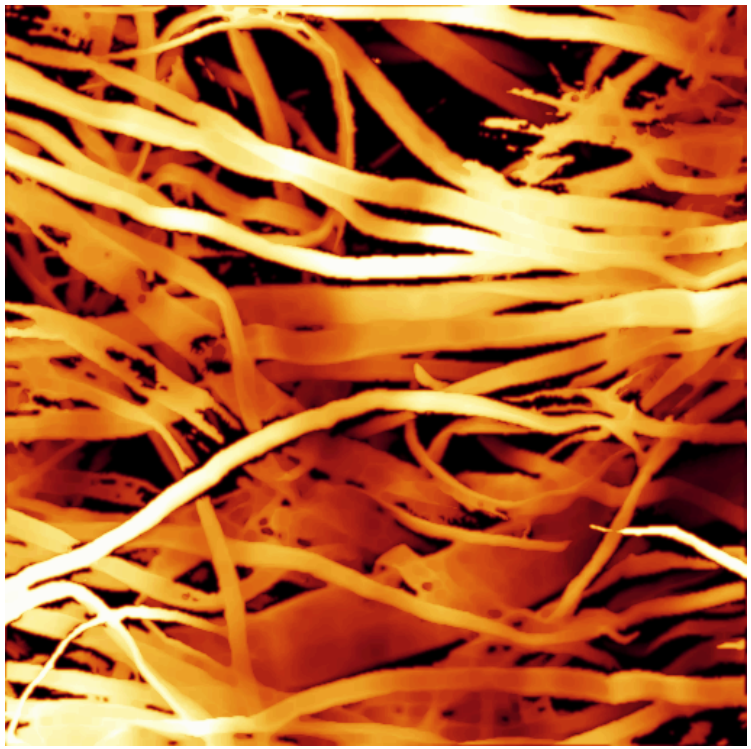


Maximum intensity projection

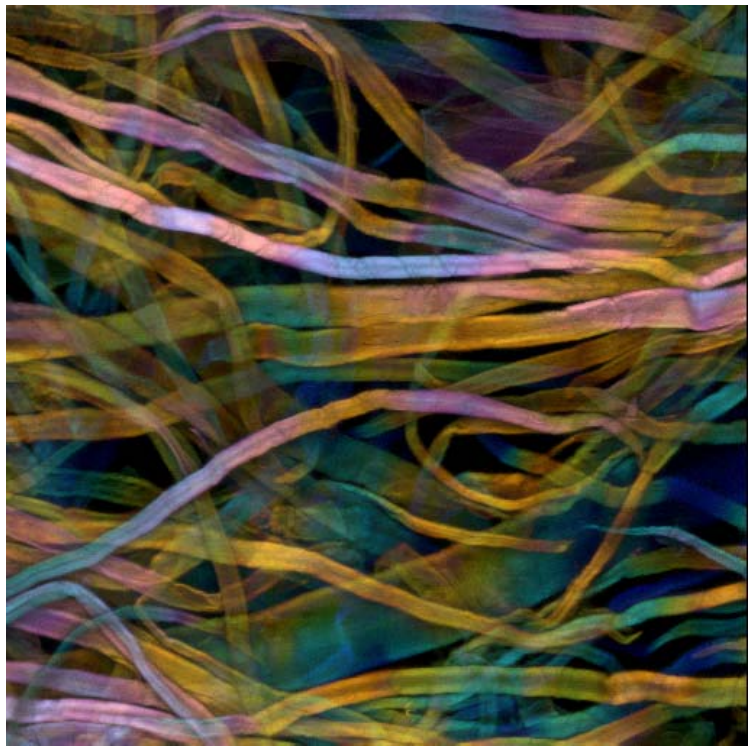


Average intensity projection
with low transparency

# Depth coding

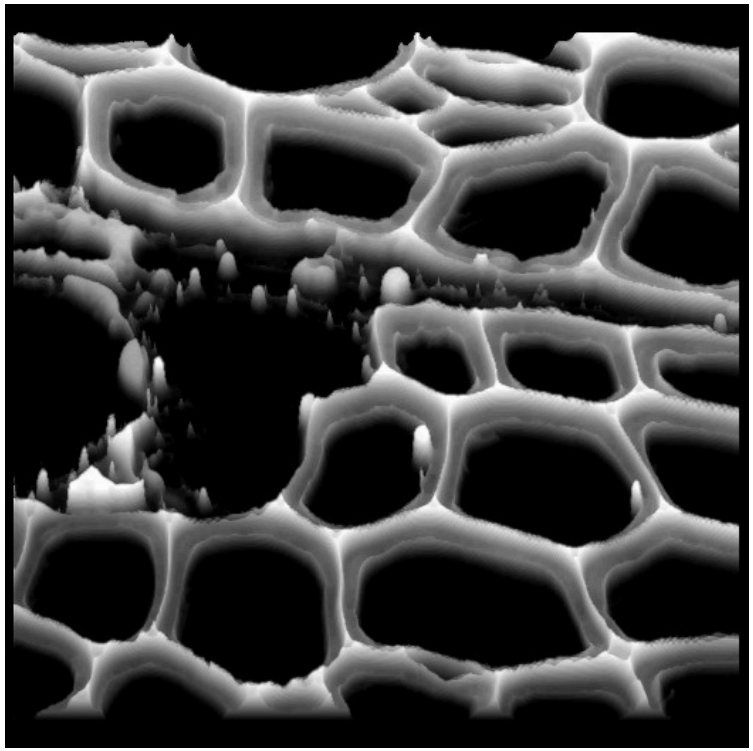


Binary threshold depth shading with false colour table

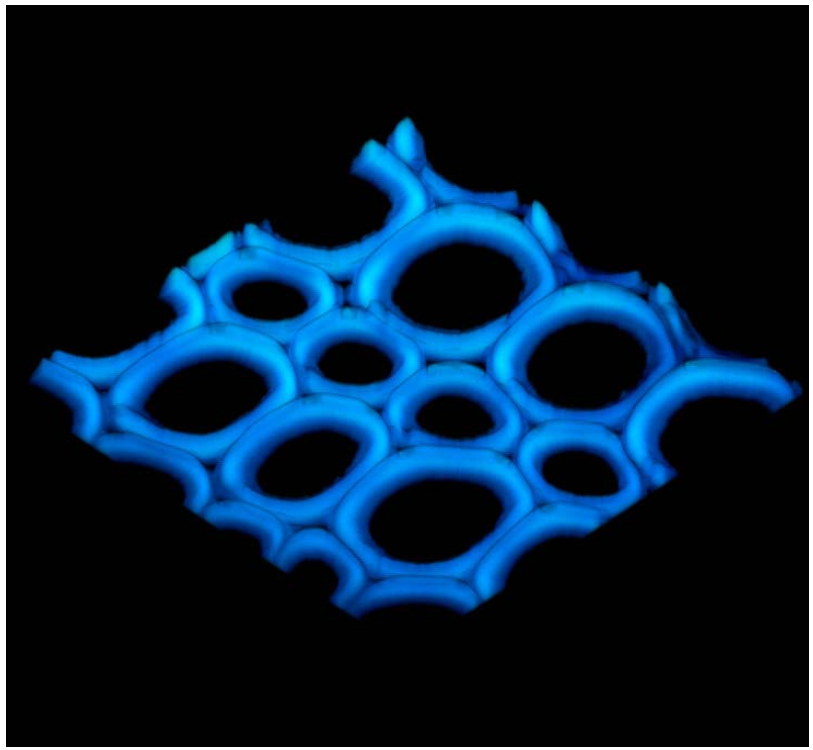


RGB colour coded depth shading

# Pseudo-3D projection

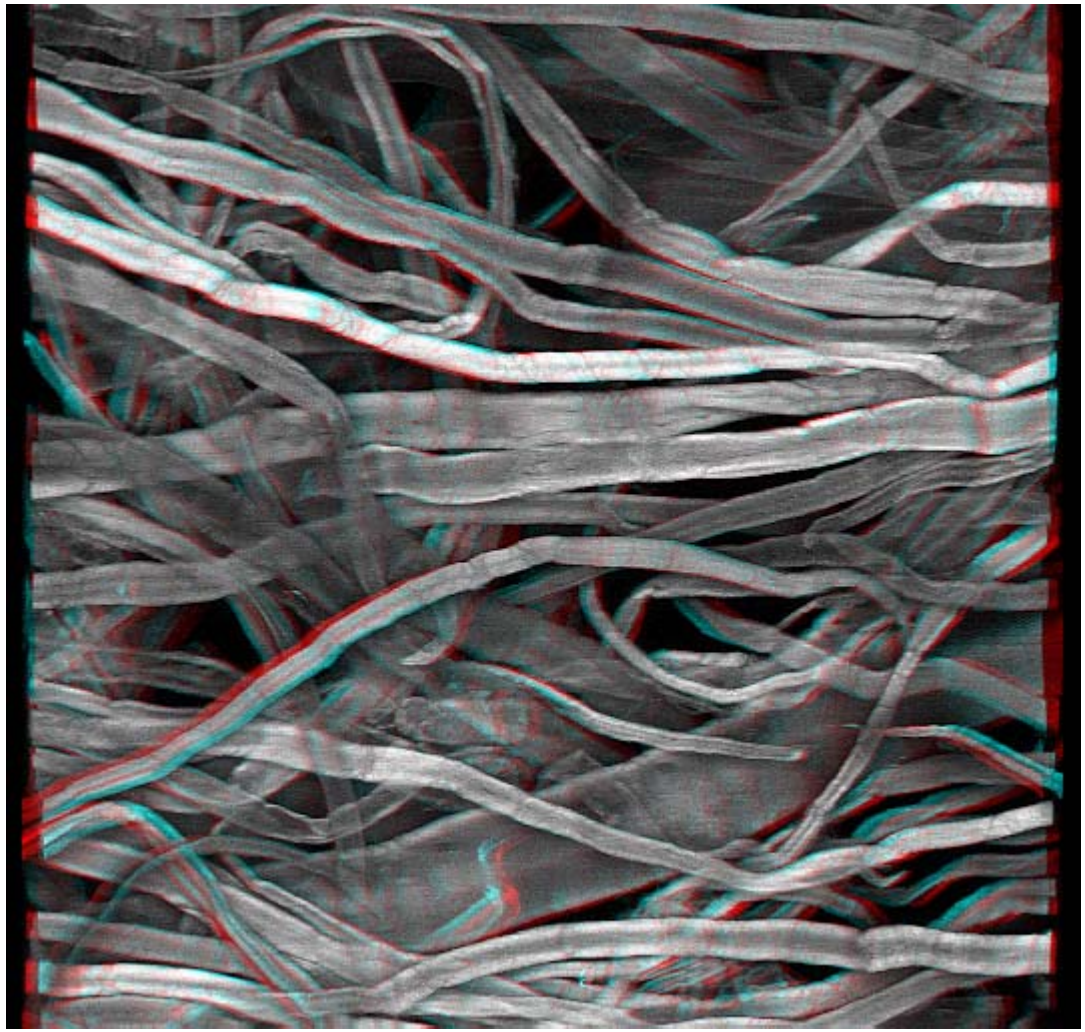


Monochrome



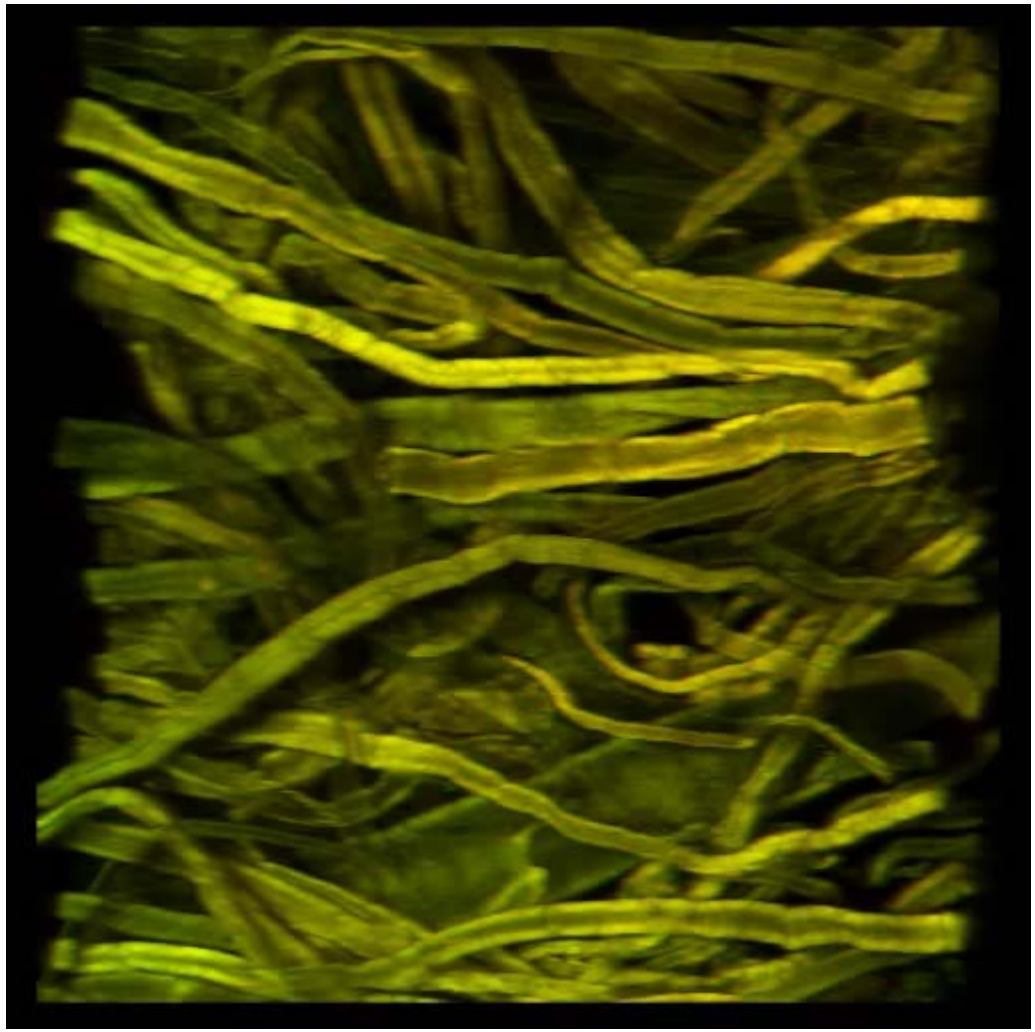
Colour

# Anaglyph 3D projection



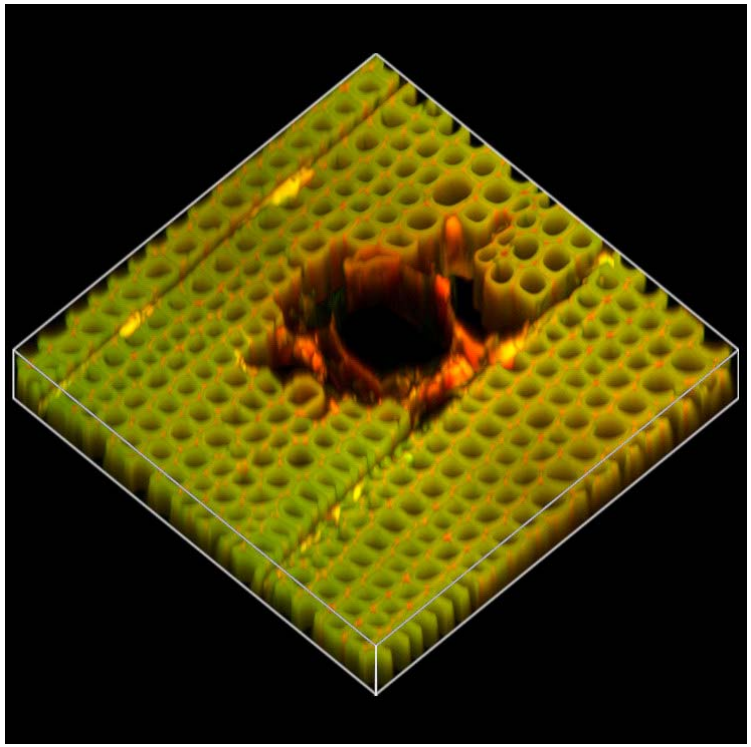
Red/green 3D glasses required (red=right)

# 3D volume

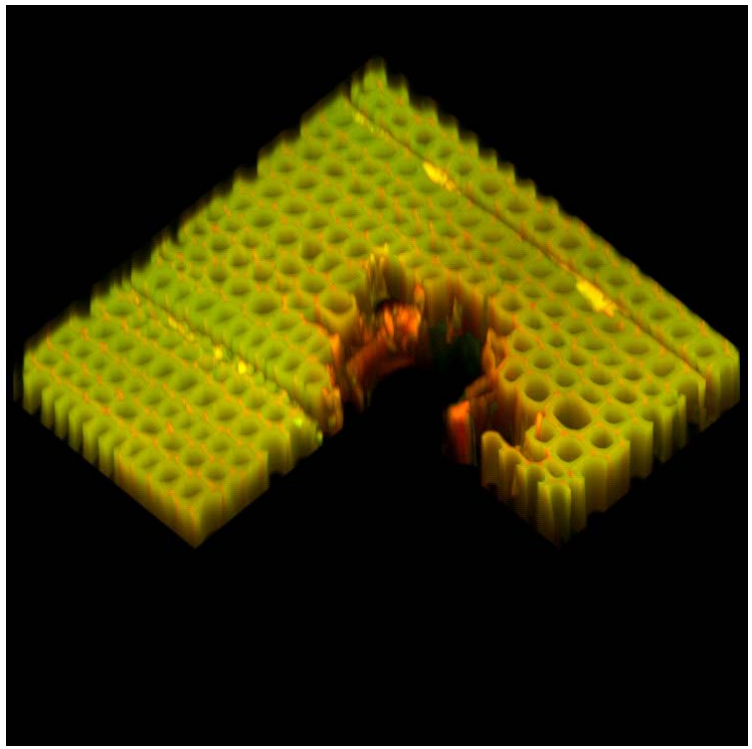


Animation of projected 3D volume. Click to play movie.

# Special projections

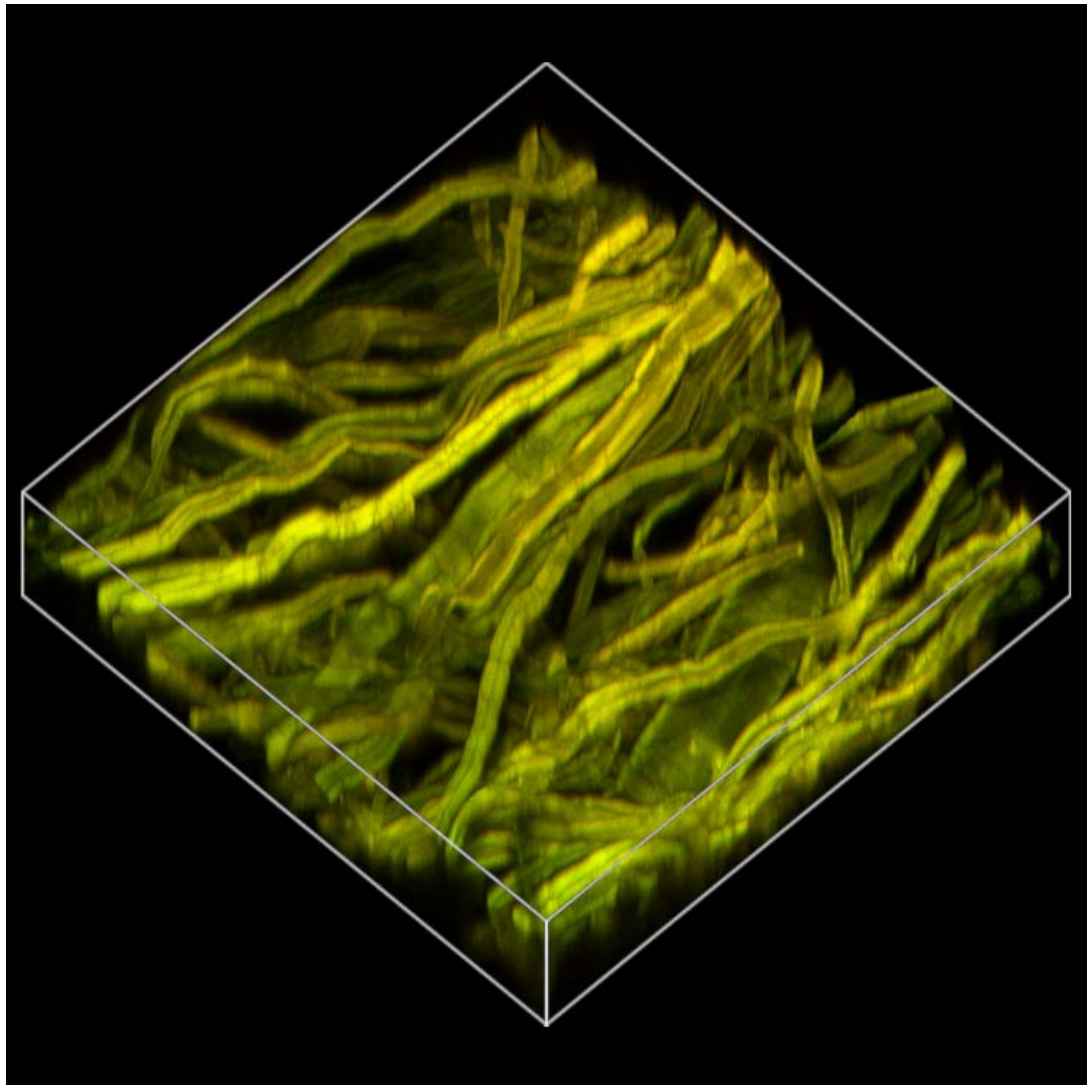


Framed volume

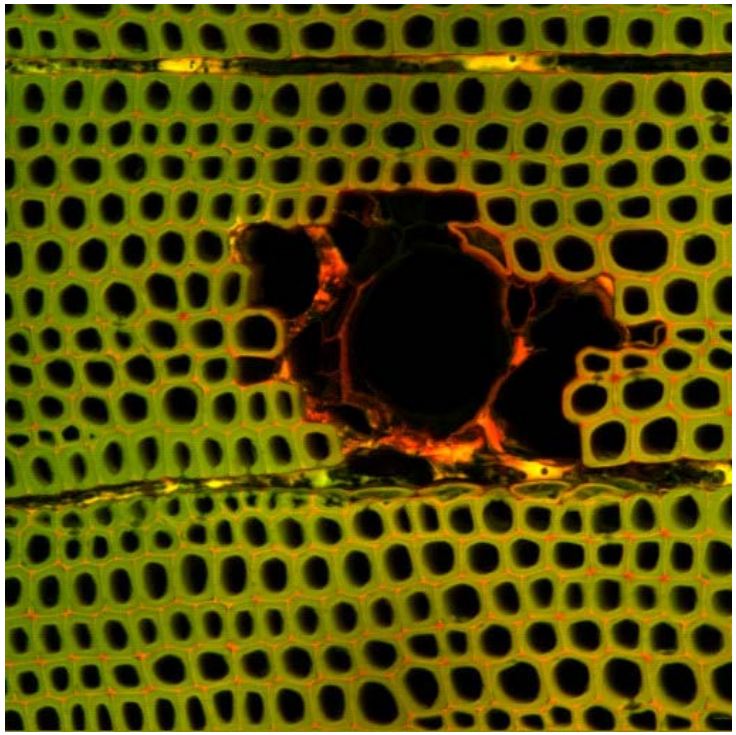


Corner delete

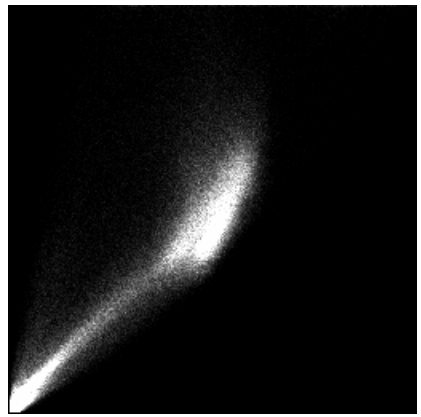
# Special projections



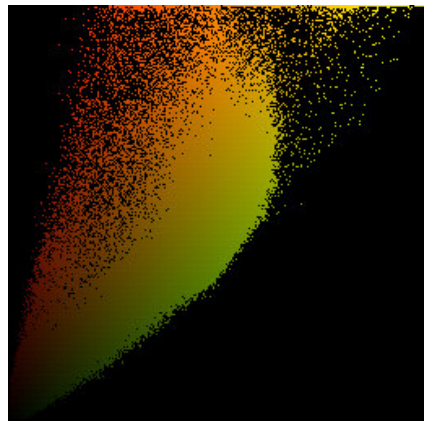
# Scatter plots



Original maximum intensity projection

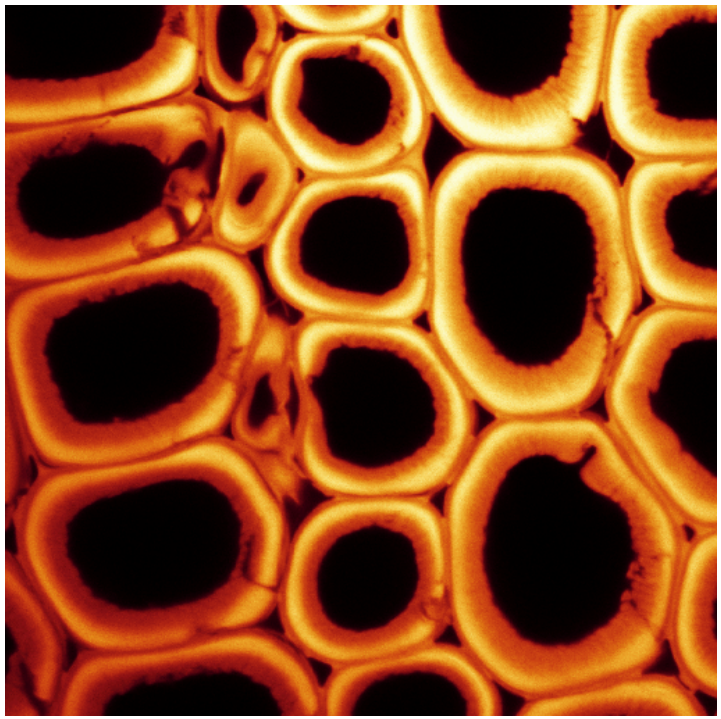


Red vs. green intensity scatter plot

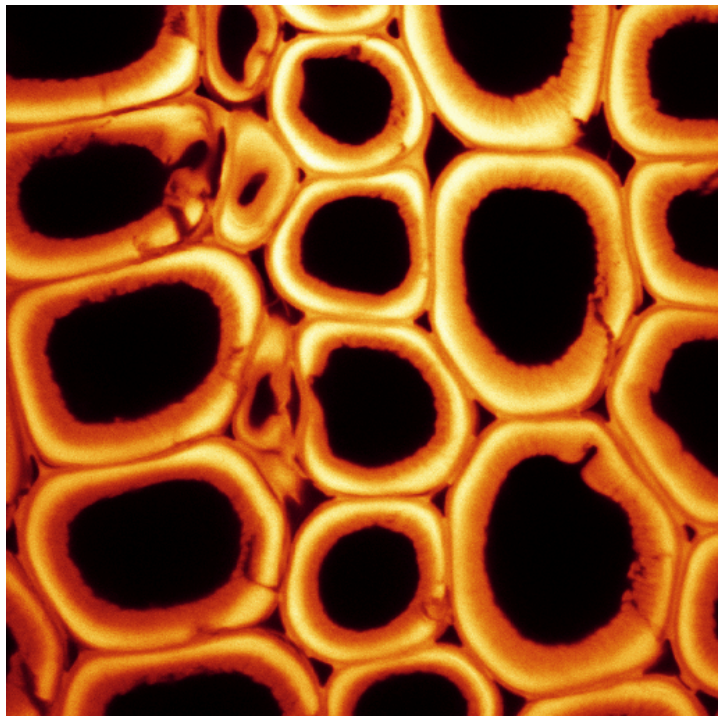


Co-localization scatter plot

# Shading removal



Original image
Shading = ( 0.08, -0.02 ) units per pixel



Corrected image
Shading = ( 0.04, 0.00 ) units per pixel

# Digital Optics V++ 5.0