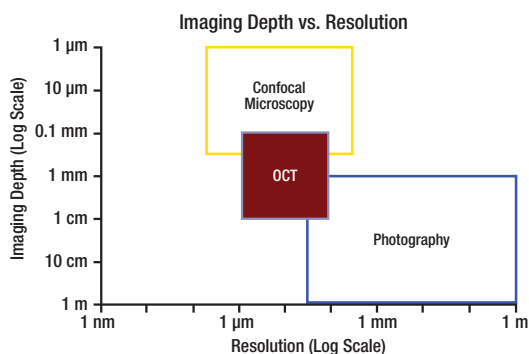


APPLICATION



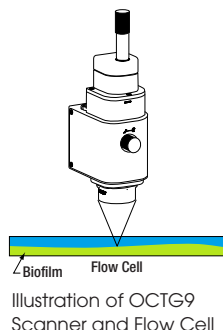
OCT works in the mesoscale and bridges the gap between microscopic methods like Confocal Laser Scanning Microscopy (CLSM) and macroscopic methods like photography.¹

QUICK FACTS

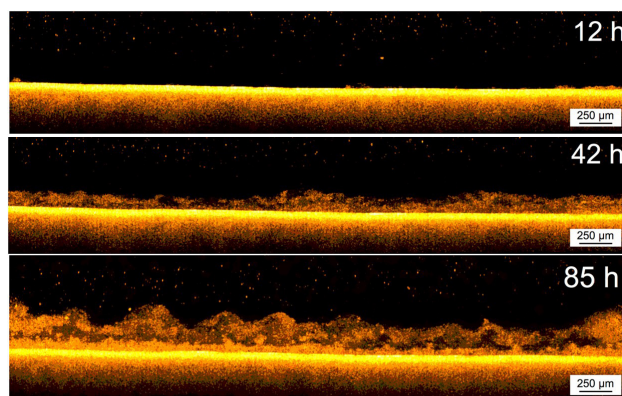
- ◆ OCT is a non-destructive, non-invasive imaging technique.
- ◆ Biofilm imaging is usually performed in water. Because spectral absorption in water is lower at 880 nm than at 1300 nm, OCT systems operating near 880 nm are preferred.
- ◆ No dyes are needed; OCT works by analyzing backscattered light.
- ◆ Imaging through a glass or PMMA window (such as in a flow cell) is possible.
- ◆ Typical interests include morphology and changes in morphology over time due to growth or external forces.
- ◆ OCT can image into biofilms and aids analysis of structural features such as pore density and size.
- ◆ Flow analysis is possible via Doppler OCT (Doppler mode included in all systems).

TYPICAL SETUP

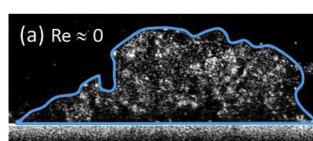
- ◆ The OCT scan lens can be dipped in open water for imaging.
- ◆ The biofilm can be grown in a reactor and then be taken out and analyzed under the OCT scanner.
- ◆ Imaging in a flow cell setup is possible, as illustrated to the right.



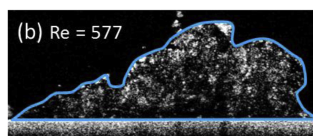
EXAMPLE IMAGES



Growth of biofilm on a membrane over several days.⁴ * The accumulation of biofilm on a membrane leads to a significant reduction in performance and is therefore of interest in many industrial applications.



Deformation of Biofilm Due to Sheer Forces:³ * (a) Original Outline of the Biofilm, (b) Deformation Under Flow of Water from Left to Right, (c) Sketch Comparing the Structure With and Without Applied Force



(c) *Biofilm II*
Err=20.7 μm
E = 500 Pa

RECOMMENDED ITEMS

Choice of OCT System:

- ◆ **GAN312C1:** For Standard Imaging of Thick Biofilms
- ◆ **GAN612C1:** For Imaging Dynamic Processes
- ◆ **GAN332C1 or GAN632C1:** For High-Resolution Imaging of Thin Biofilms



Useful Accessories:

- ◆ For Larger Depth of Focus: **OCT-LK4-BB** Scan Lens Kit and **OCT-RA4** Reference Length Adapter
- ◆ Recommended When Imaging Through More Than 10 mm of Water, Glass, and PMMA: **SRA10** Spacer Reference Arm
- ◆ Special Spacers and Reference Arms for Imaging in Open Water:
 - **OCT-IMM3-SP1 & SRA10** for OCT-LK3-BB Lens
 - **OCT-IMM4-SP1 & SRA30** for OCT-LK4-BB Lens

Interested? Email OCT@thorlabs.com for more information.

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