

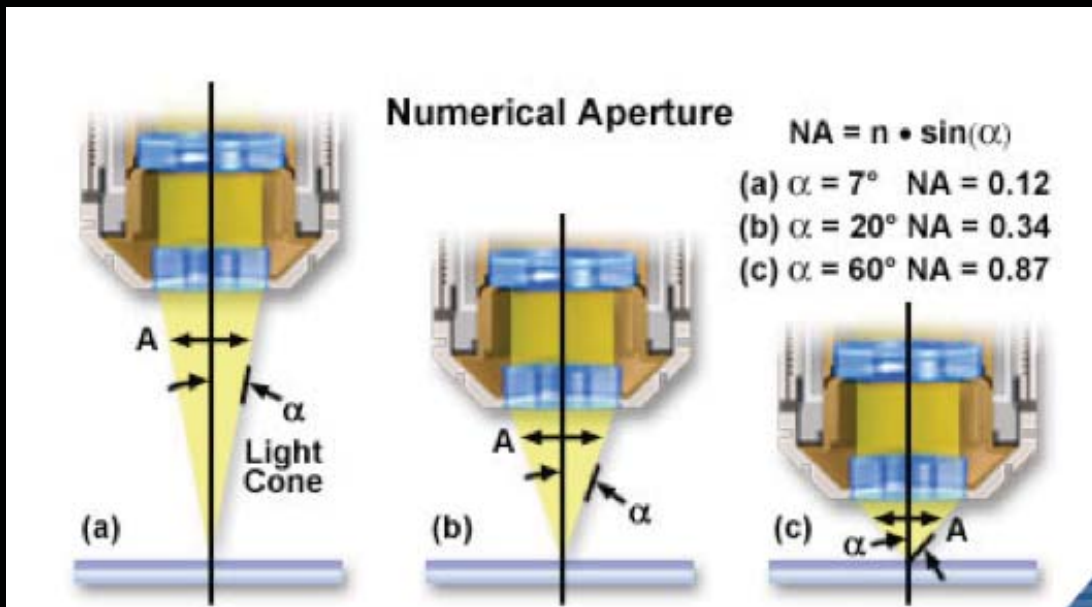
Riveal Contrast

- Structural & morphological information from unstained samples
 - Increased resolution & contrast versus brightfield/phase/DIC
 - Full colour imaging - 3 chip highly sensitive camera
 - Simultaneous fluorescence imaging
 - Upgradeable with structured illumination
- Streamlined acquisition & analysis workflow
 - Patented real-time visualization algorithms
 - Runs in Volocity (Perkin Elmer)
- Environment Control/heated stage – in development
- Inverted option – in development

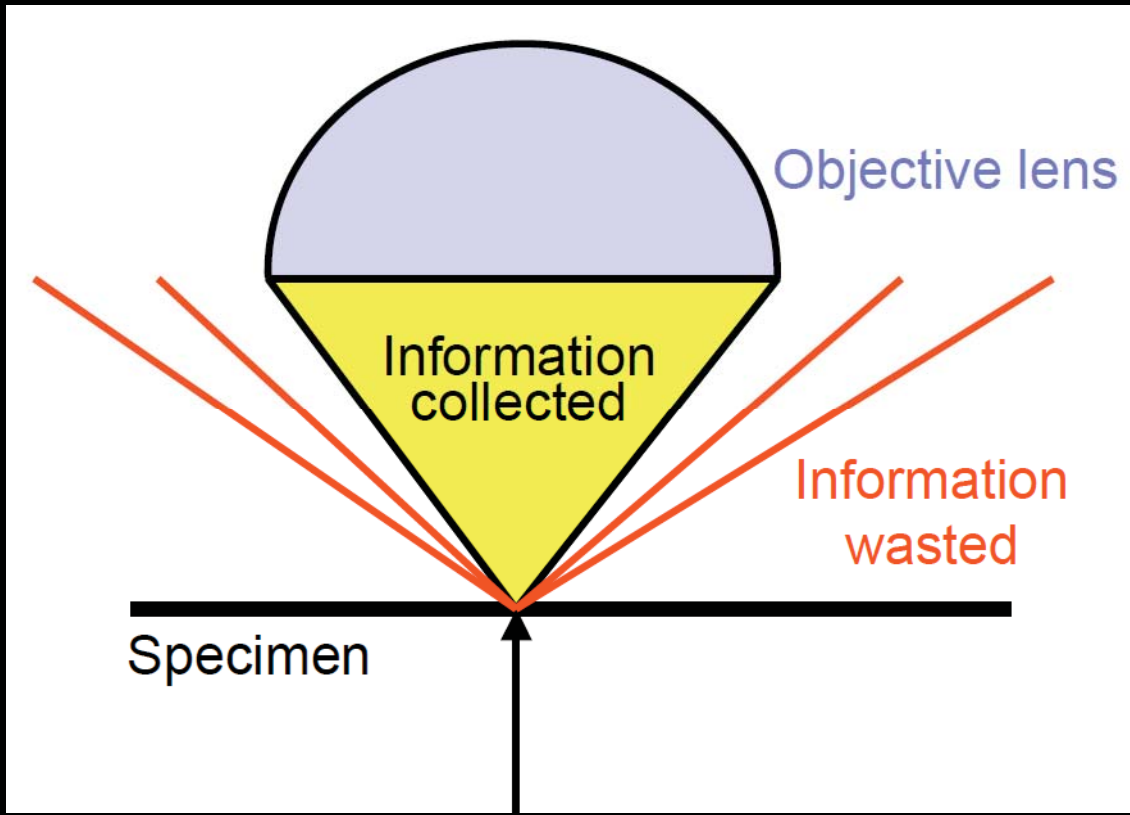


light at work





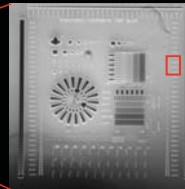
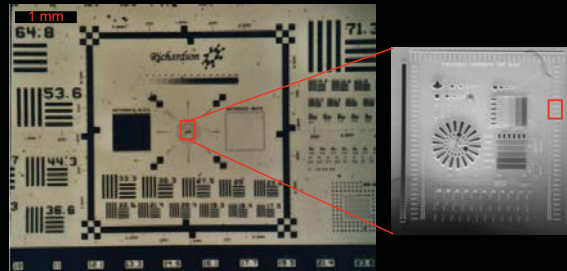
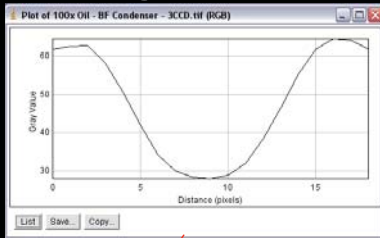
light at work



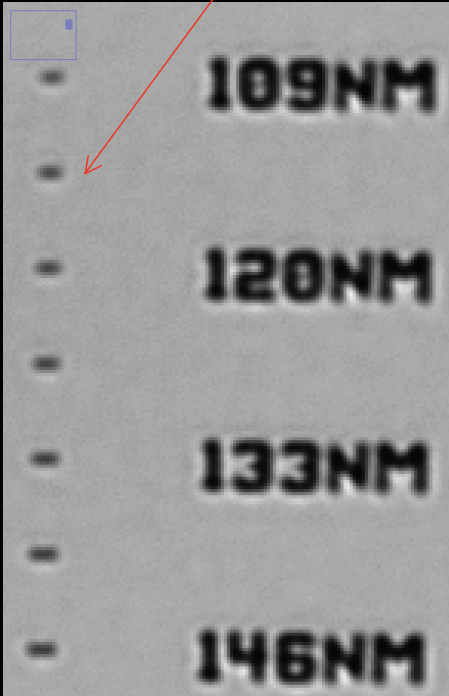
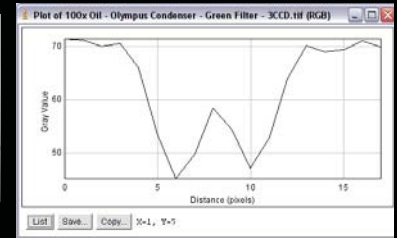
light at work

BF vs Riveal Illumination

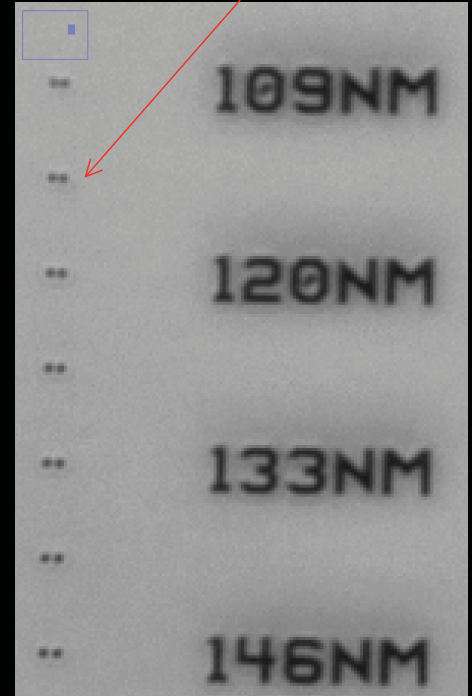
Brightfield



Riveal

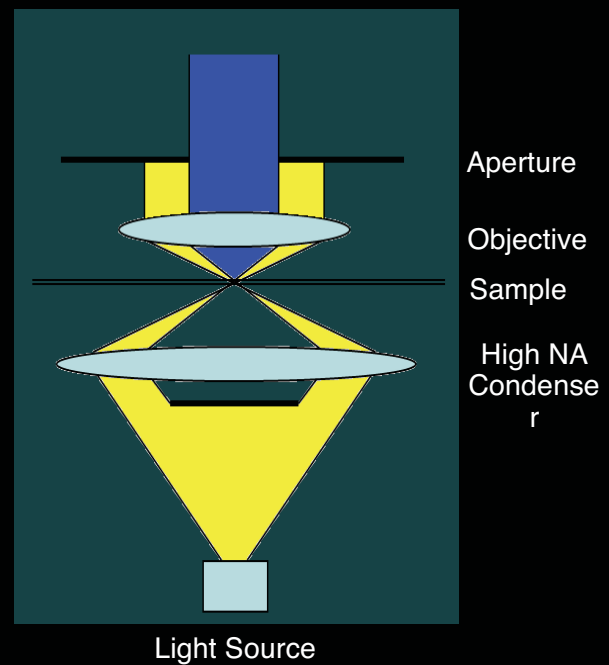


- Resolution target (Richardson Test Slide)
- 100x/1.4 NA objective
- Left: Brightfield Illumination
- Right: Riveal Illumination
- Increased resolution due to oblique illumination



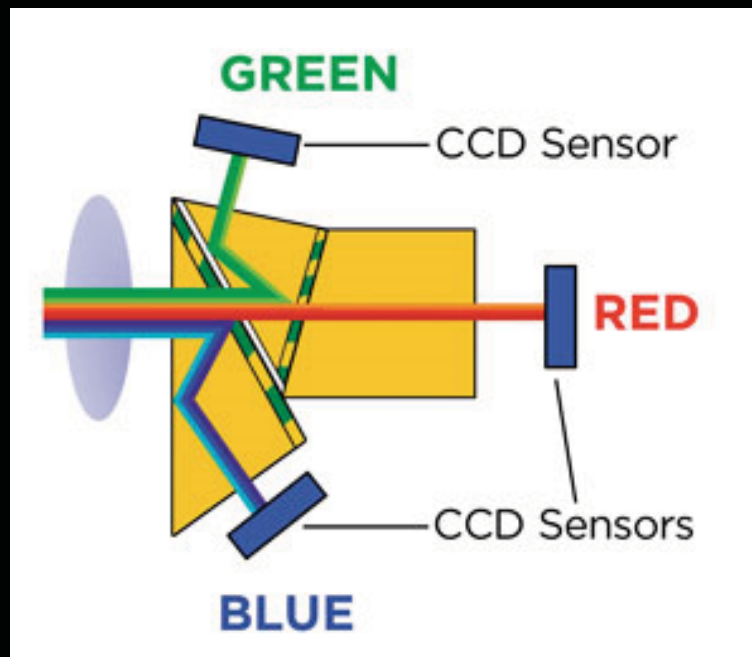
Riveal Contrast – Optical Modes

- High Contrast Mode
 - Only scattered light reaches detector
- Morphology Mode
 - Scatter/transmitted light combination
- Fluorescence (Optional)
 - Widefield
 - Structured Illumination



light at work

Full Colour 3 CCD Camera



light at work

Simultaneous Riveal/Fluorescence



- Intracellular Fungal Parasite
 - 100x Morphology Mode
 - Ejected polar filament clearly visible
 - DAPI staining of ejected sporoplasm confirms proper fire
- Sample courtesy of Richelle Monaghan, University of Waterloo



Quorum

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Simultaneous Riveal/Fluorescence



- Intracellular Fungal Parasite
 - 100x Morphology Mode
 - Ejected polar filament clearly visible
 - DAPI staining of ‘mis-fired’ sporoplasm still in spore
- Sample courtesy of Richelle Monaghan, University of Waterloo



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Riveal - Main Advantages

- High Resolution
- High Contrast
- Visibility of structures that are not visible with other methods
- No foreign stains or probes required
- Full colour imaging of native pigments
- Less toxic imaging conditions compared to other contrast techniques
- Ability to change between 4 display modes on the fly.
- Cellular activities in real time



light at work

Quorum