FIG. 1

Halogen lamp
NA = 0.75

Prior automated stage
Microscope objective

Lens 200 mm

DBS

F = 100 mm
Vis achromat lens

Beam expander 1:3

Clean-up filter (532 nm)

Laser 532 nm (50 mW)

IHR 550 (f = 550 mm, f/6.4 aperture)
Grating = 600 grooves/mm

Slit

Andor CCD

Long-pass filter

Triplet lens 1:1

F = 50 mm

Bi-convex lens

F = 25 mm

Slit 6 mm aperture

Mirror

Triplet lens 1:1

F = 50 mm

Raman

Laser
FIG. 4

A

Principal Components

Extent of Variation (a.u.)

Pixels

B

Principal Components

Extent of Variation (a.u.)

Pixels
FIG. 5

Principal Component 4

B1, 7PDs

A3, 18PDs

A3, 60PDs

A1, 8PDs

B1, 7PDs

A3, 60PDs

A1, 8PDs

A3, 18PDs

Principal Component 3