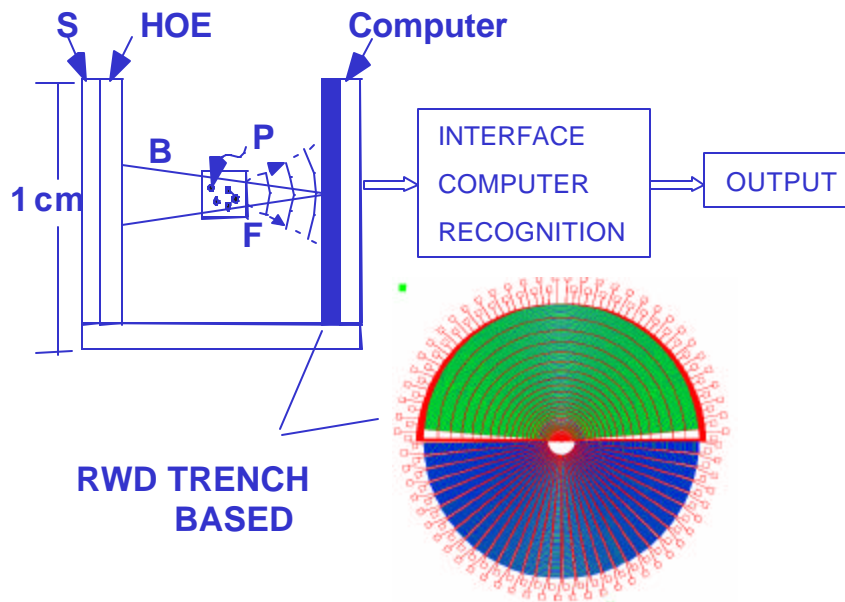


LIGHT SCATTERING AND PATTERN RECOGNITION OF PATHOGENIC STRUCTURES

Weizhen Yan

Nicholas George

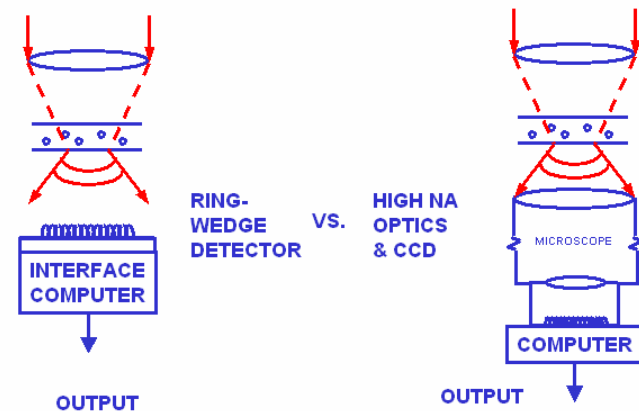


OBJECTIVE

WITH AN EMPHASIS ON AUTOMATIC
PATTERN RECOGNITION, THE OBJECTIVE IS
TO DEVISE AN INTEGRATED CHIP-SCALE
SYSTEM FOR COUNTING AND CLASSIFYING
BIOLOGICAL AGENTS IN THE SIZE RANGE
FROM 0.5 μm TO 100 μm .

SYSTEM TRADE - OFF

DIFFRACTION PATTERN SAMPLING VS. DIRECT IMAGE PROCESSING



- CONSIDER PARTICLE SIZE REGIMES

APPROACH/RESULT

- RWD IS RECOGNIZED COUNTING TECHNIQUE FOR SORTING PARTICLES WITH GREAT ACCURACY
- TECHNIQUE PIONEERED BY US : OPTICS LETTERS (1991)
- SOFTWARE FOR HIGH DENSITY: 10,000 COUNTS AND FOR LOW DENSITY: <10 PARTICLES
- APPLY NEW ALGORITHM IN THE PATTERN RECOGNITION FIELD

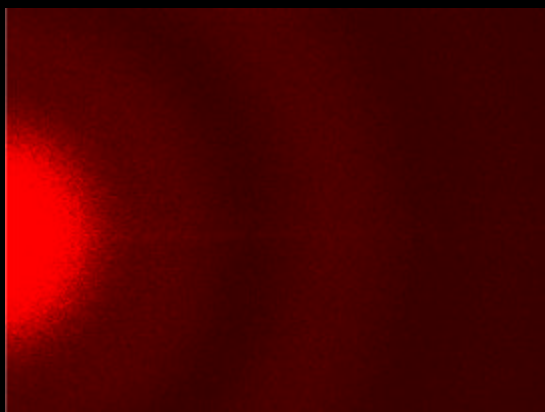
March 2002

LIGHT SCATTERING AND PATTERN RECOGNITION OF PATHOGENIC STRUCTURES

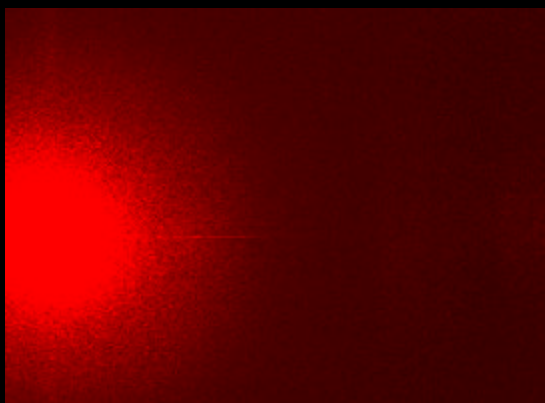
Weizhen Yan

Nicholas George

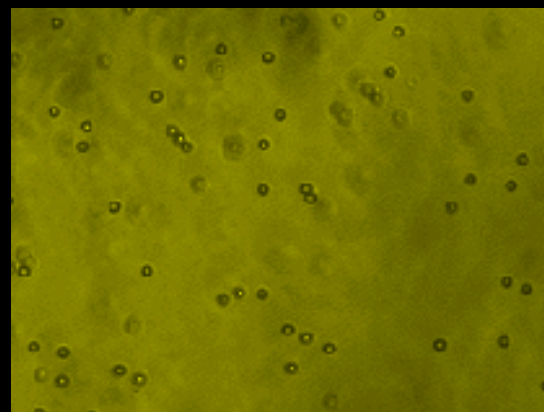
DIFFRACTION PATTERN



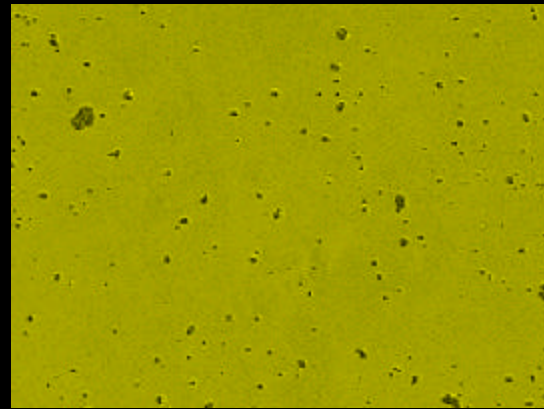
3rd ring



IMAGE



6 μ m Polymer Sphere



S.cerevisiae

March 2002