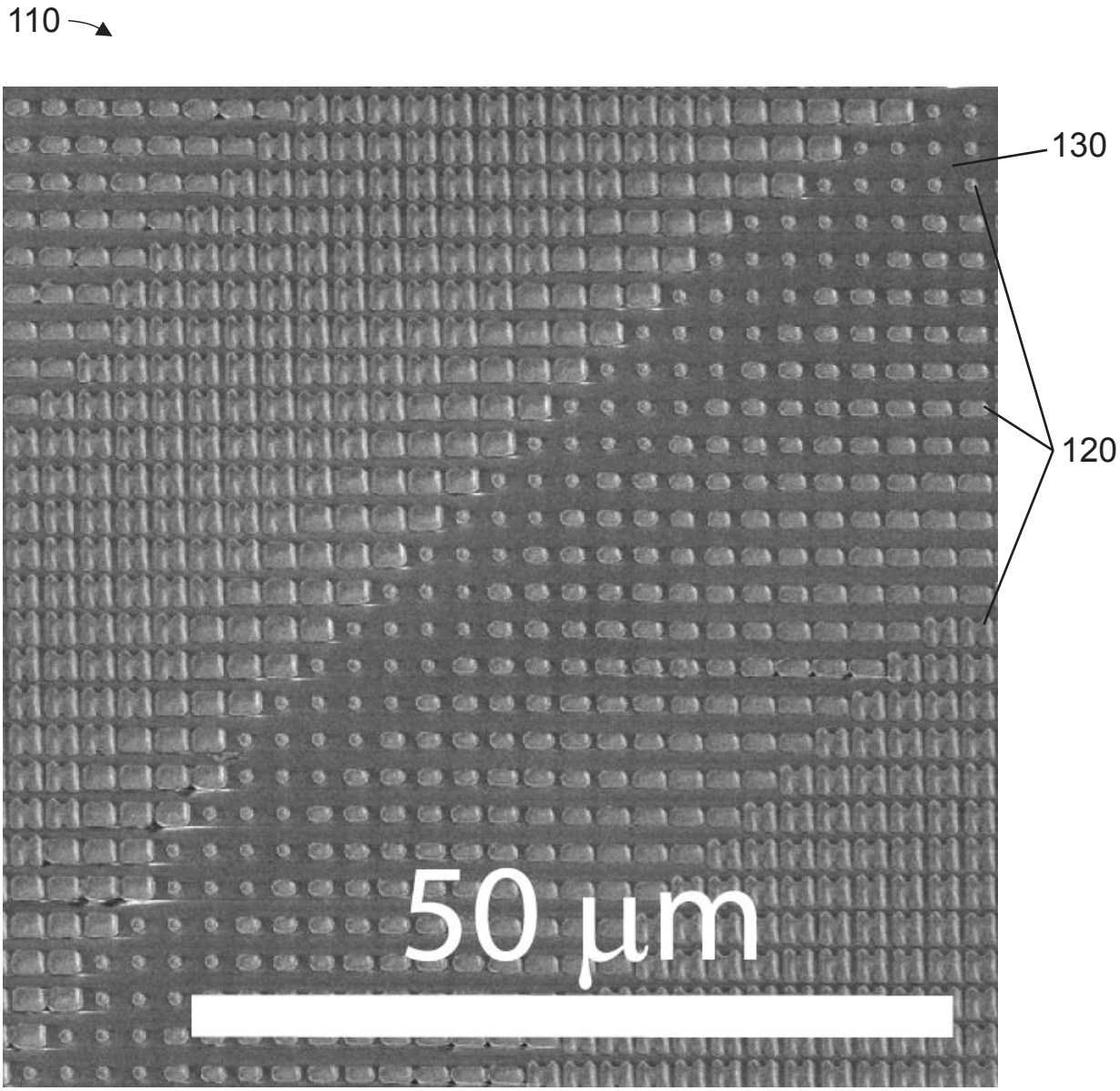


FIG. 1

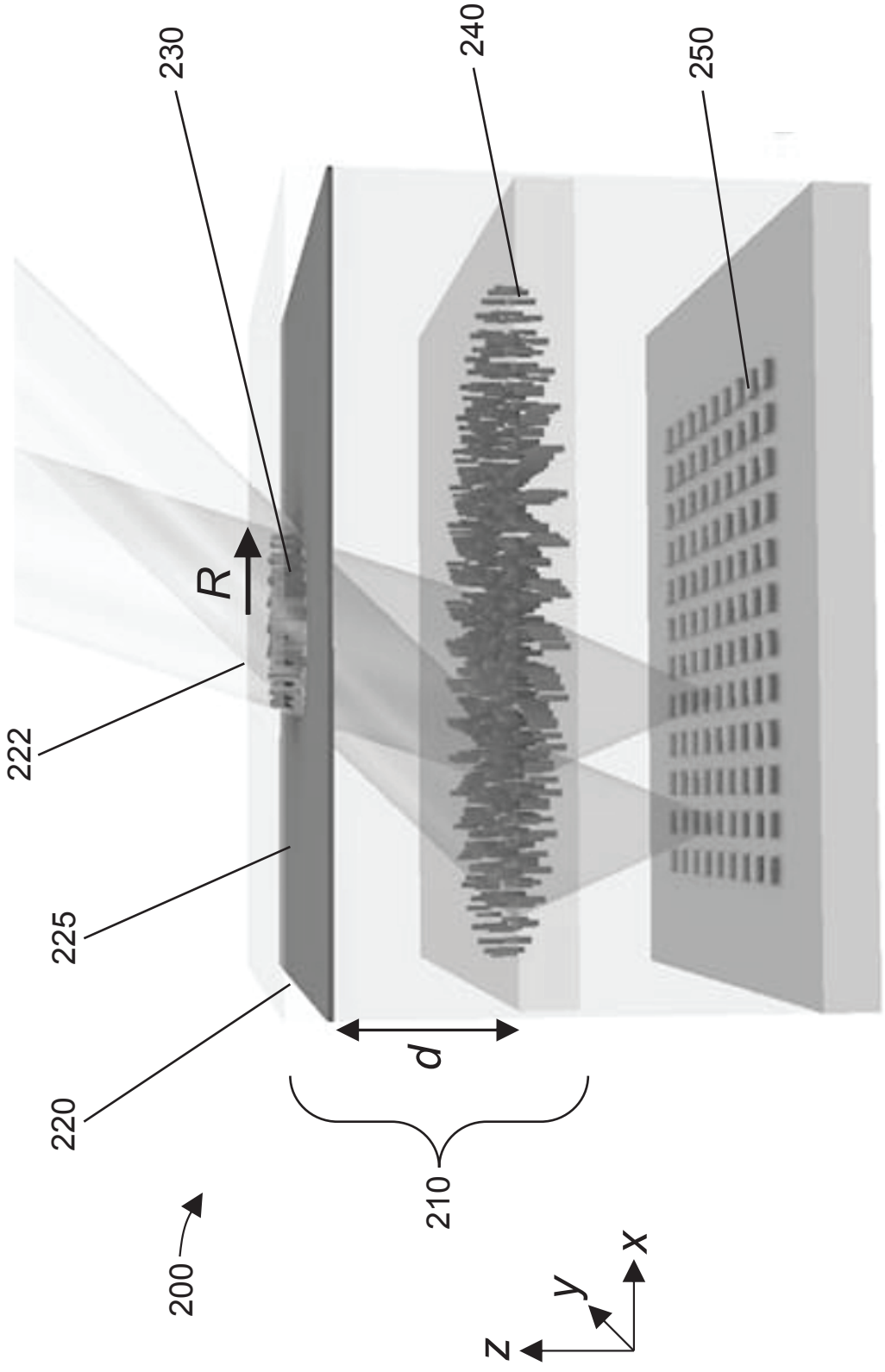


FIG. 2A

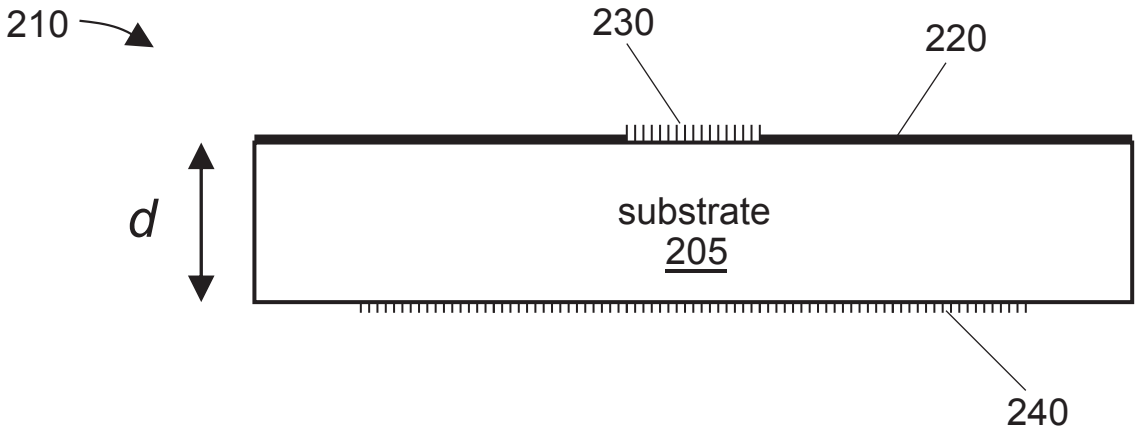

210
230
220
d
substrate
205
240

FIG. 2B

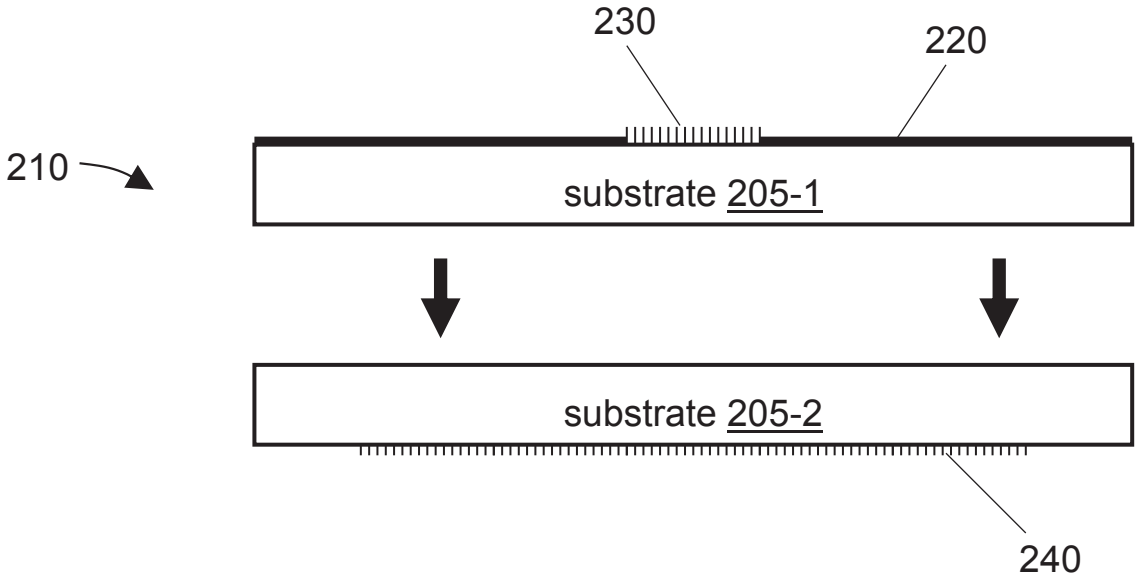

230
220
210
substrate 205-1
substrate 205-2
240

FIG. 2C

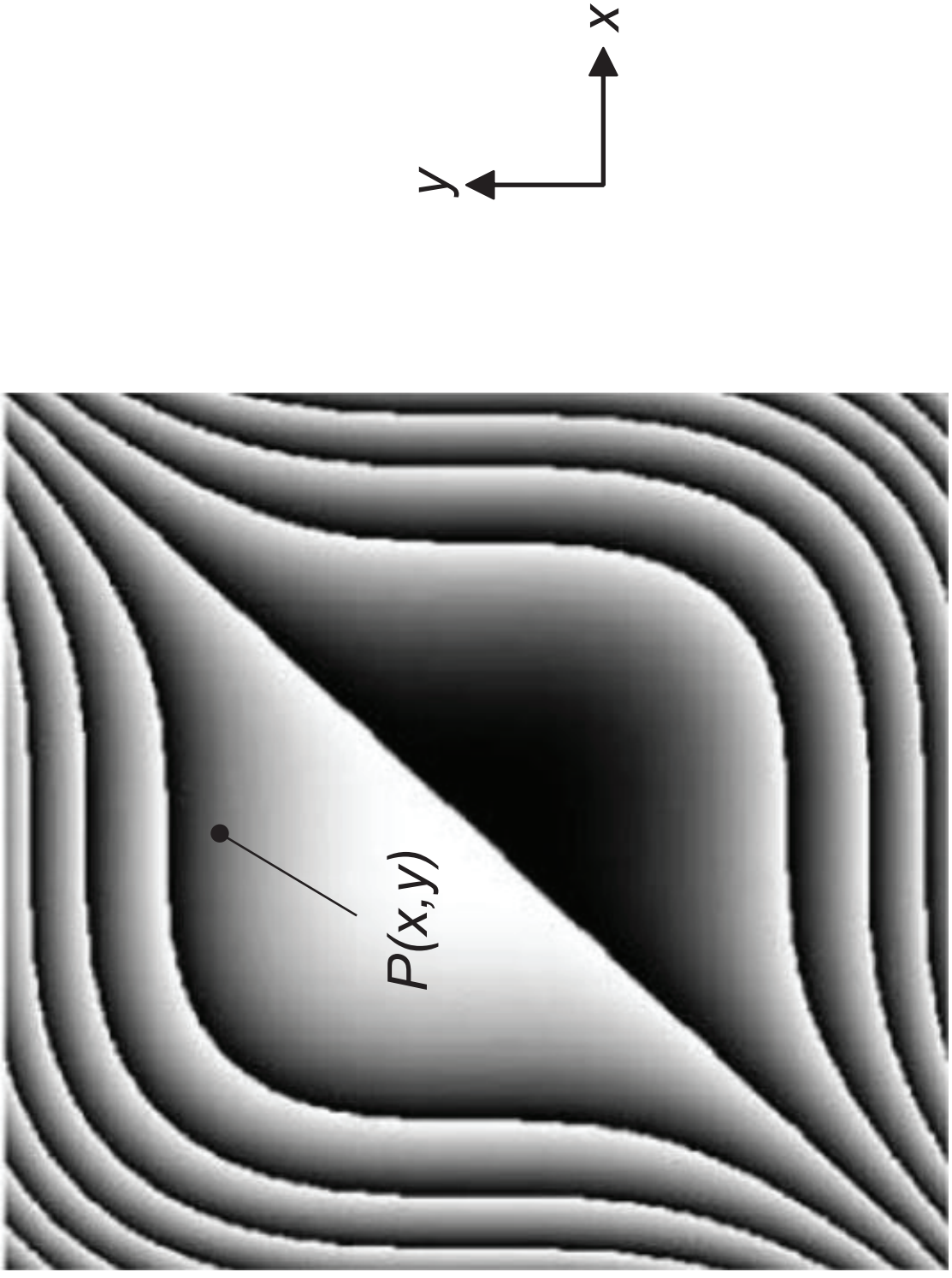


FIG. 3A

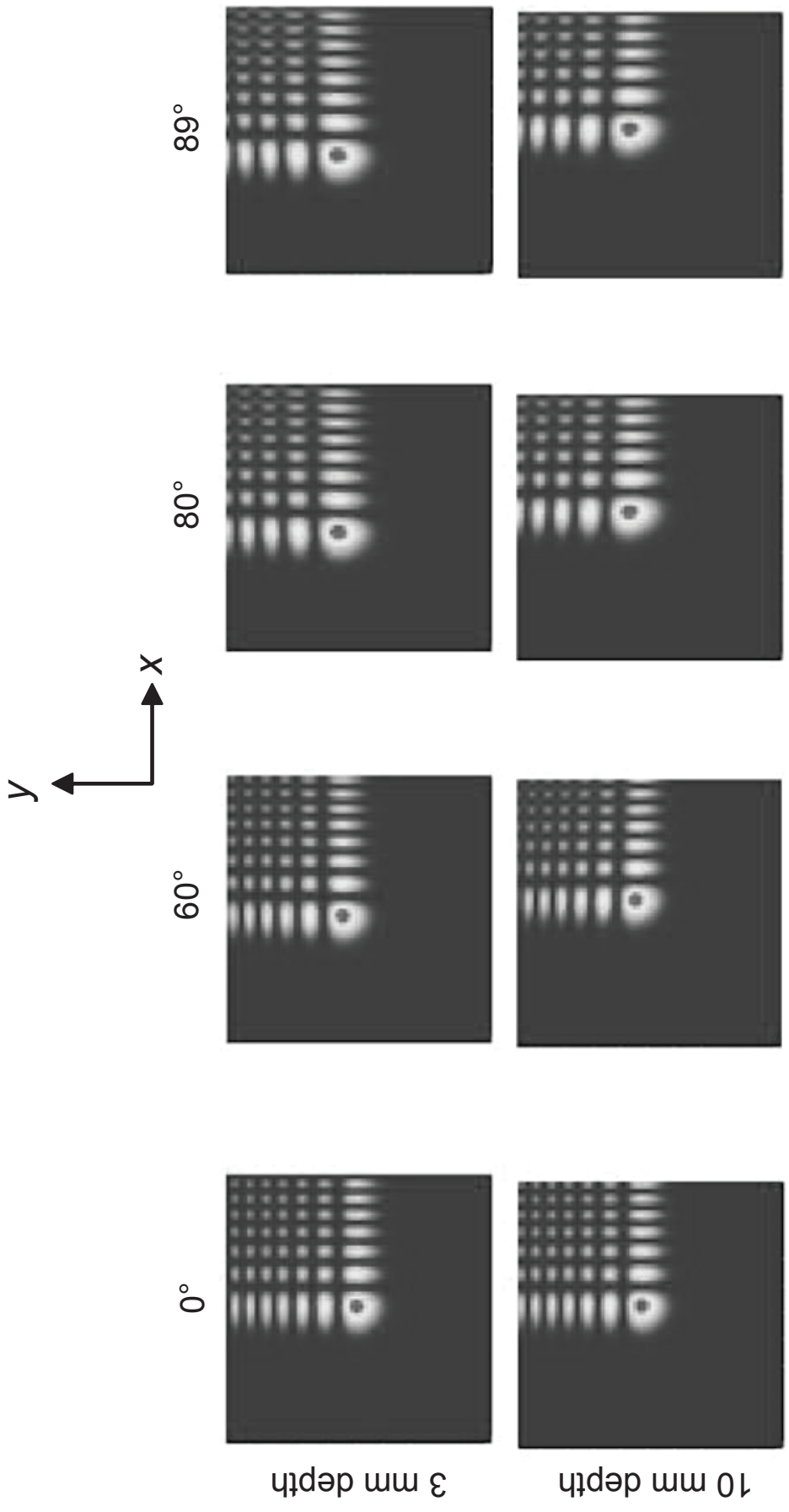


FIG. 3B

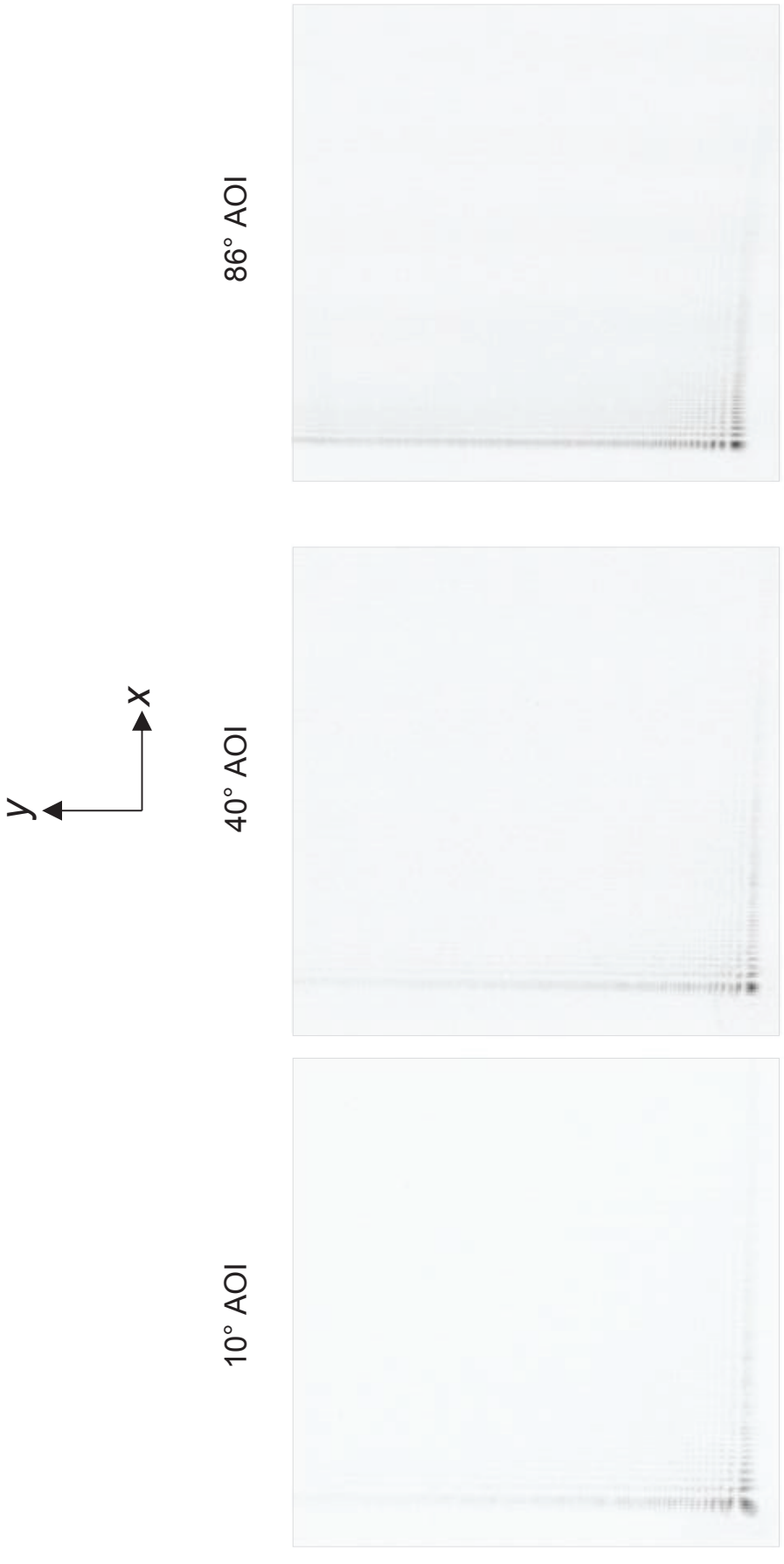


FIG. 3C

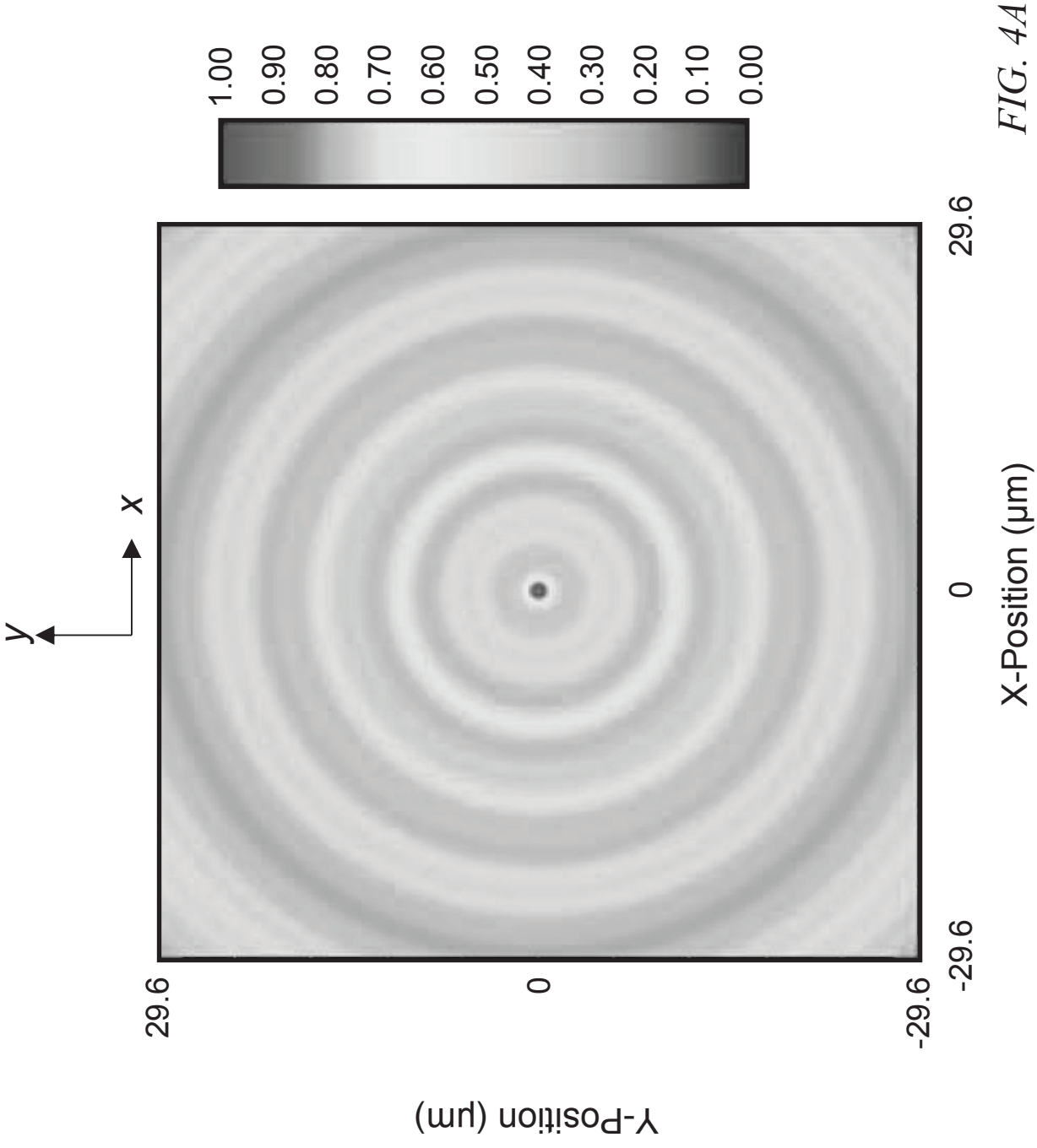

1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
y
x
29.6
0
-29.6
Y-Position (μm)
29.6
0
-29.6
X-Position (μm)

FIG. 4A

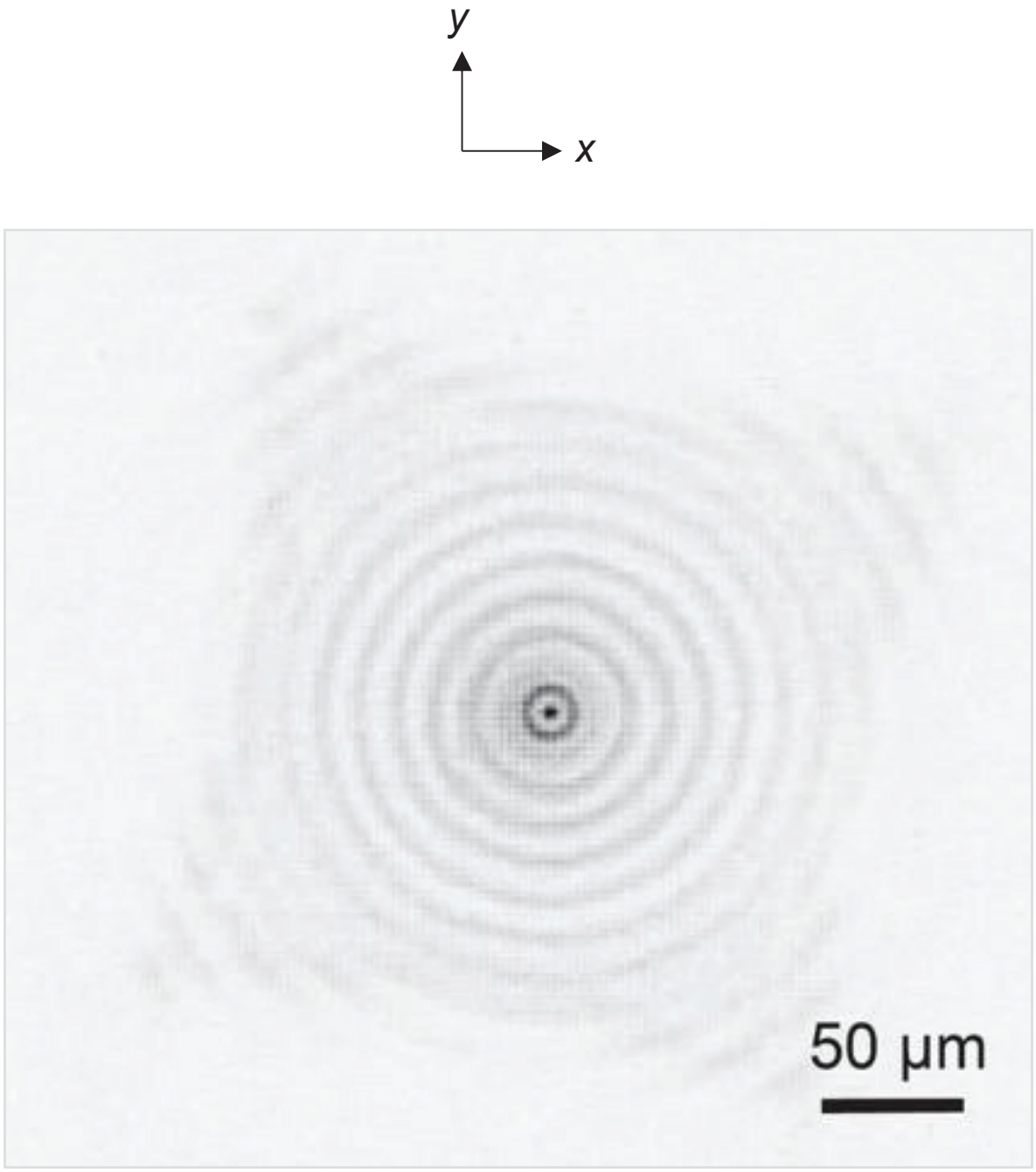


FIG. 4B

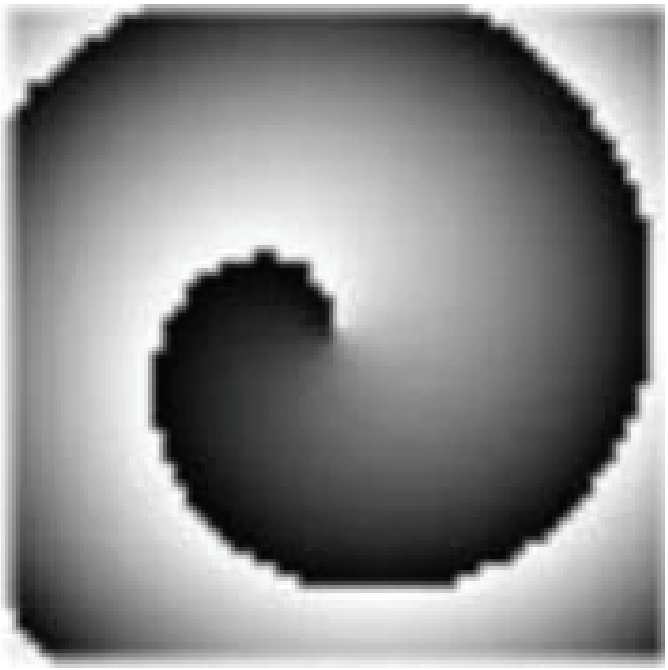


FIG. 5B

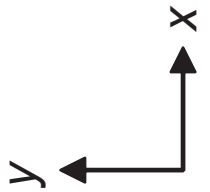




FIG. 5A

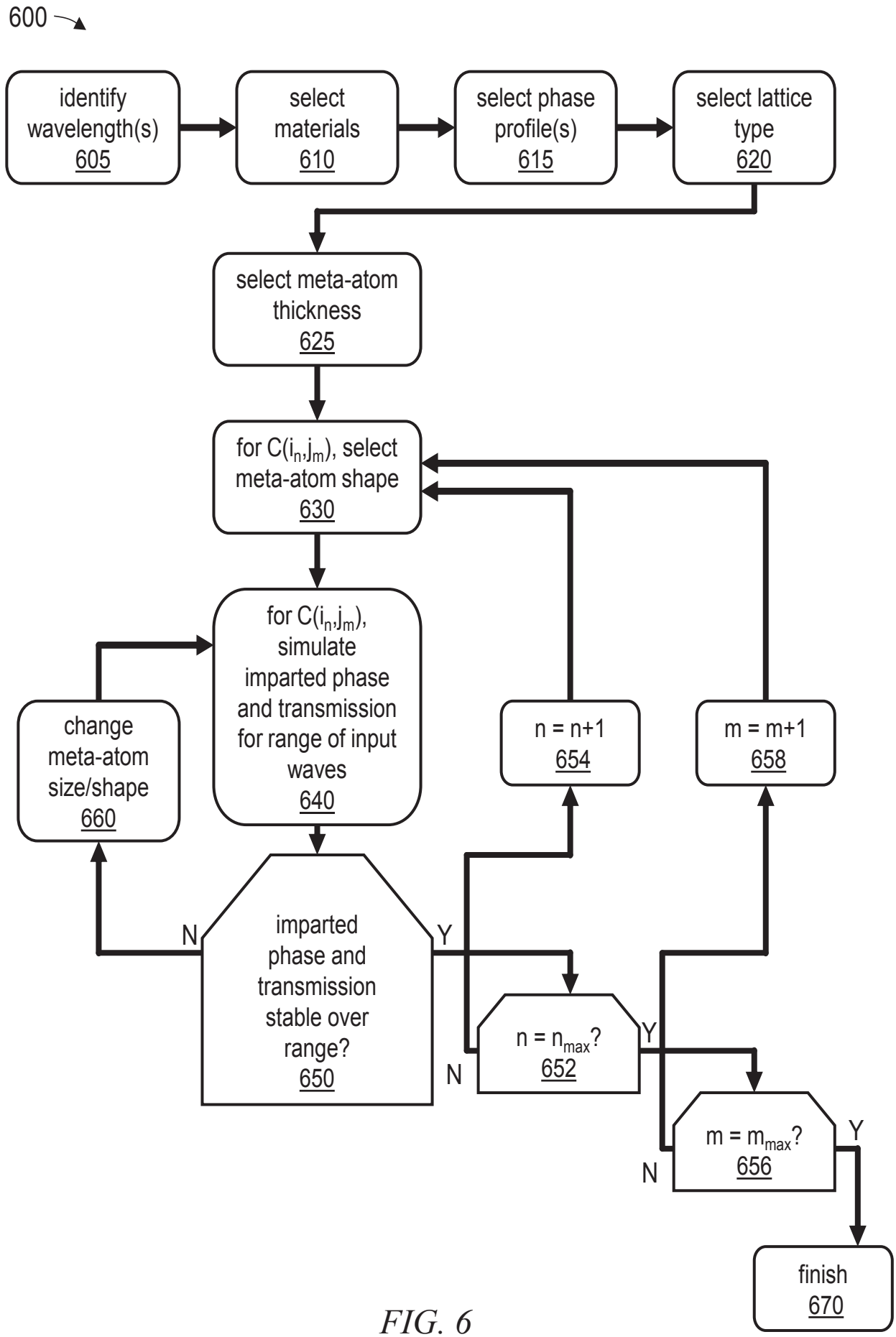

600
identify wavelength(s) 605
select materials 610
select phase profile(s) 615
select lattice type 620
select meta-atom thickness 625
for C(i_n,j_m), select meta-atom shape 630
for C(i_n,j_m), simulate imparted phase and transmission for range of input waves 640
change meta-atom size/shape 660
imparted phase and transmission stable over range? 650
N
Y
n = n+1 654
n = n_max? 652
N
Y
m = m+1 658
m = m_max? 656
N
Y
finish 670

FIG. 6

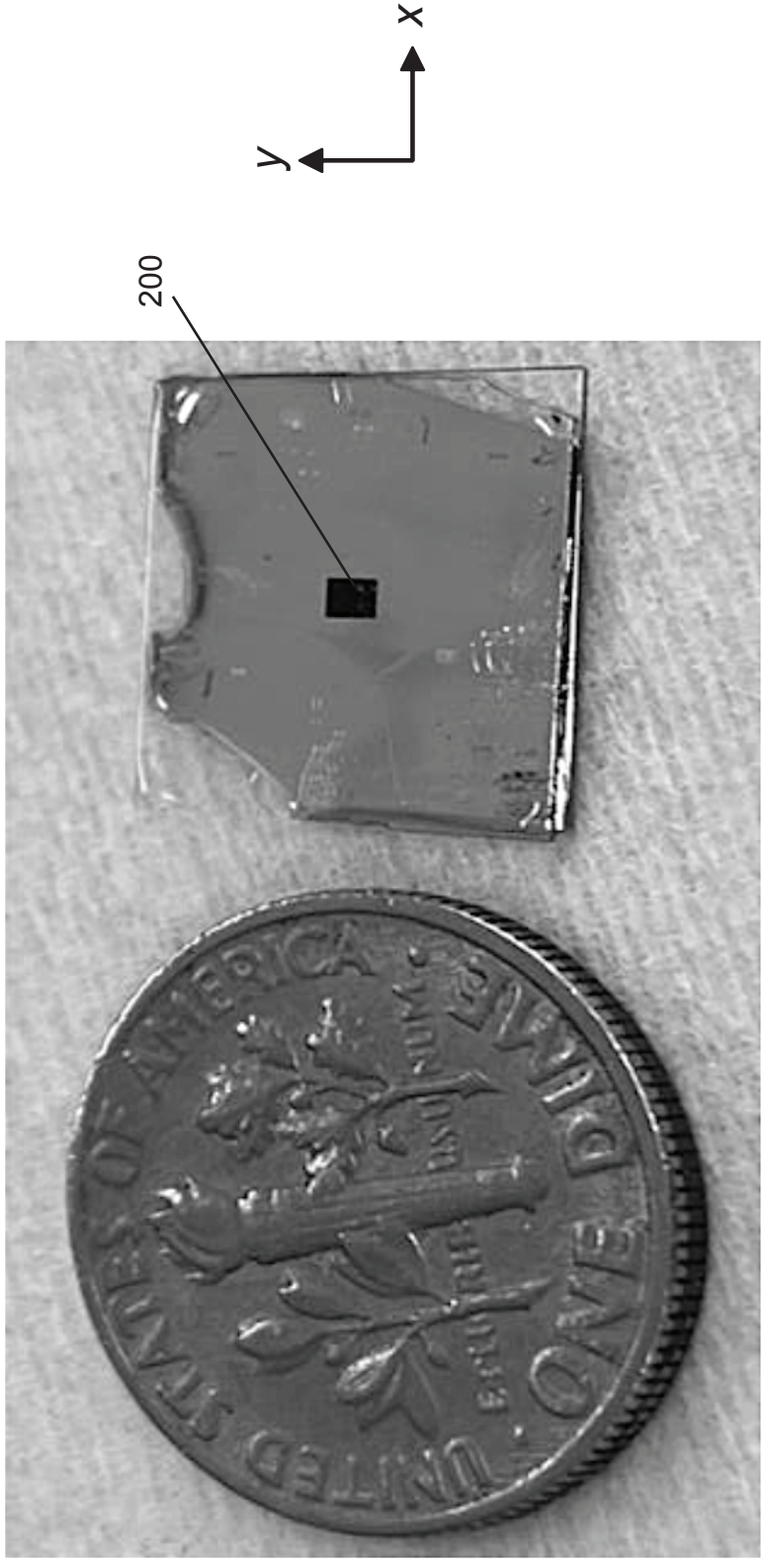


FIG. 7

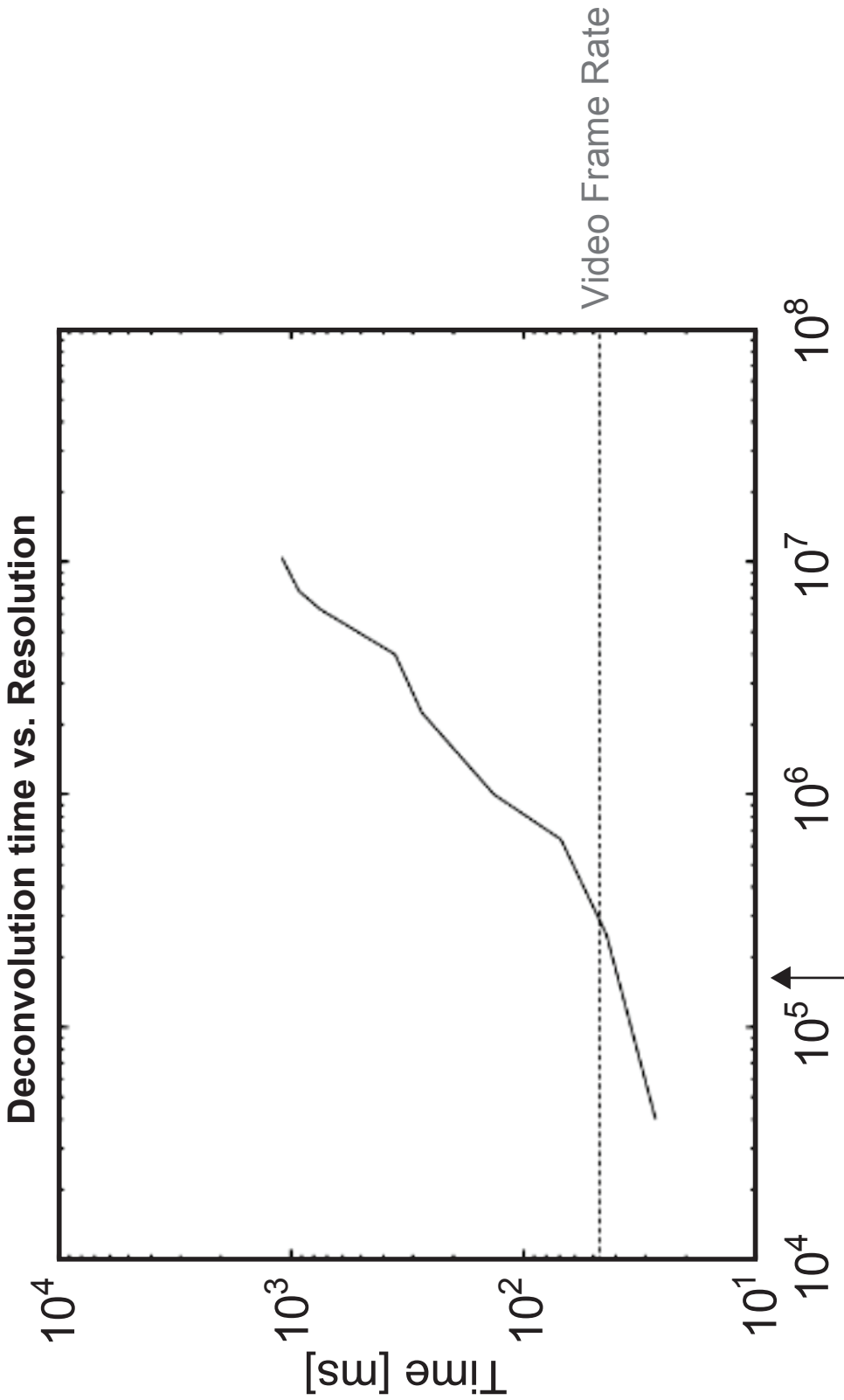

Deconvolution time vs. Resolution
Time [ms]
10^4
10^3
10^2
10^1
10^4
10^5
10^6
10^7
10^8
Resolution [pixel]
Chip-on-tip Resolution
Video Frame Rate

FIG. 8


Target Distance
75 mm
25 mm
5 mm
2.5 mm
1 mm
Pre-Processing

FIG. 9A


Post-Processing
Resolution limit ~ 50 lp/mm at 1 mm (approx. 8 µm)

FIG.9B



Resolution Limit 115 lp/mm (approx. 4 µm)

FIG. 10A

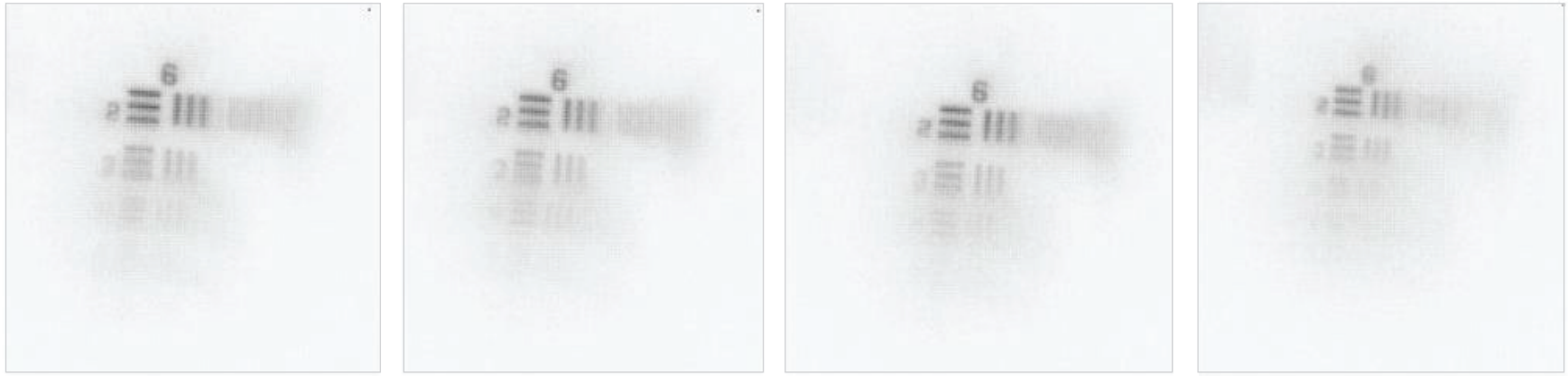


FIG. 10B

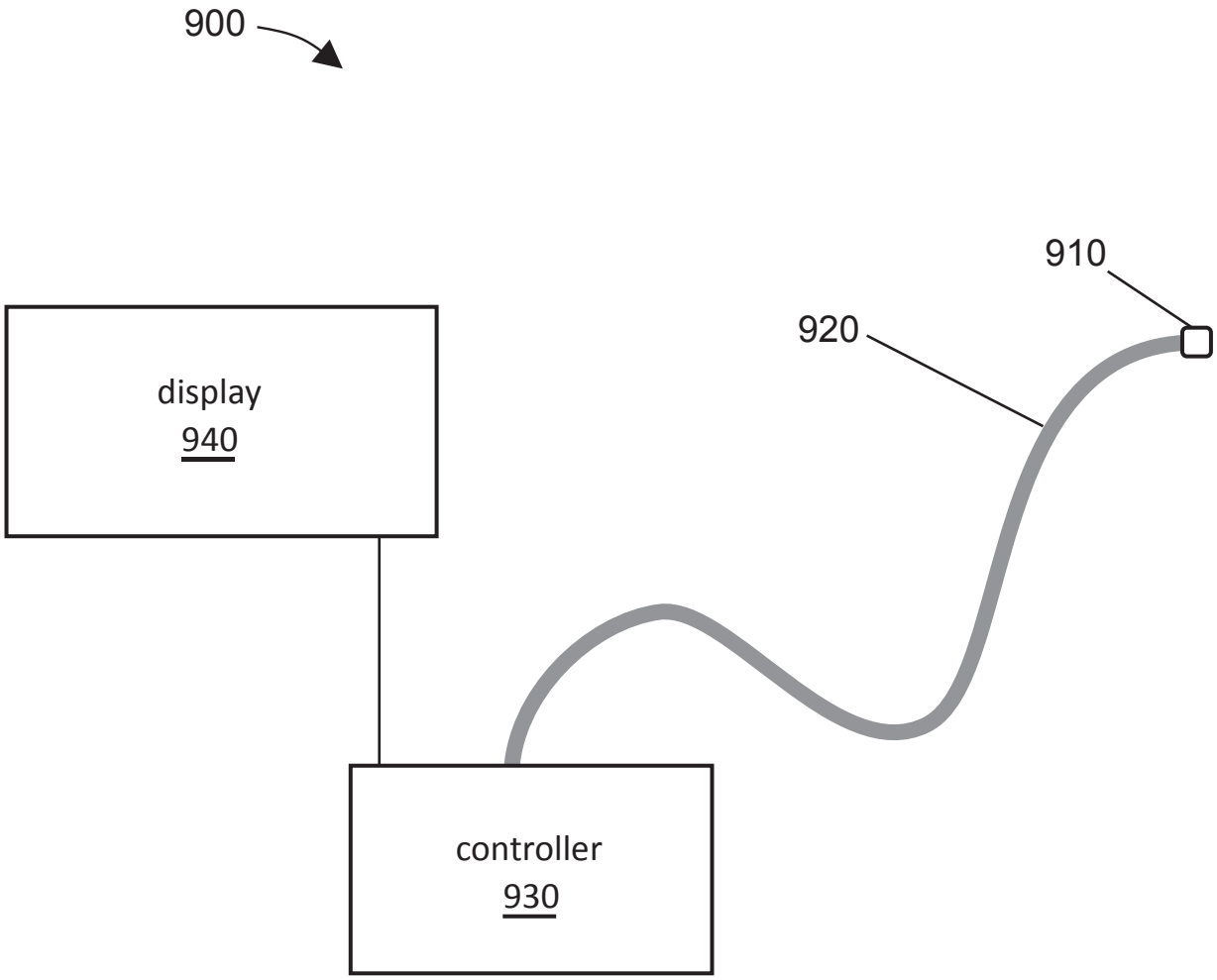


FIG. 11