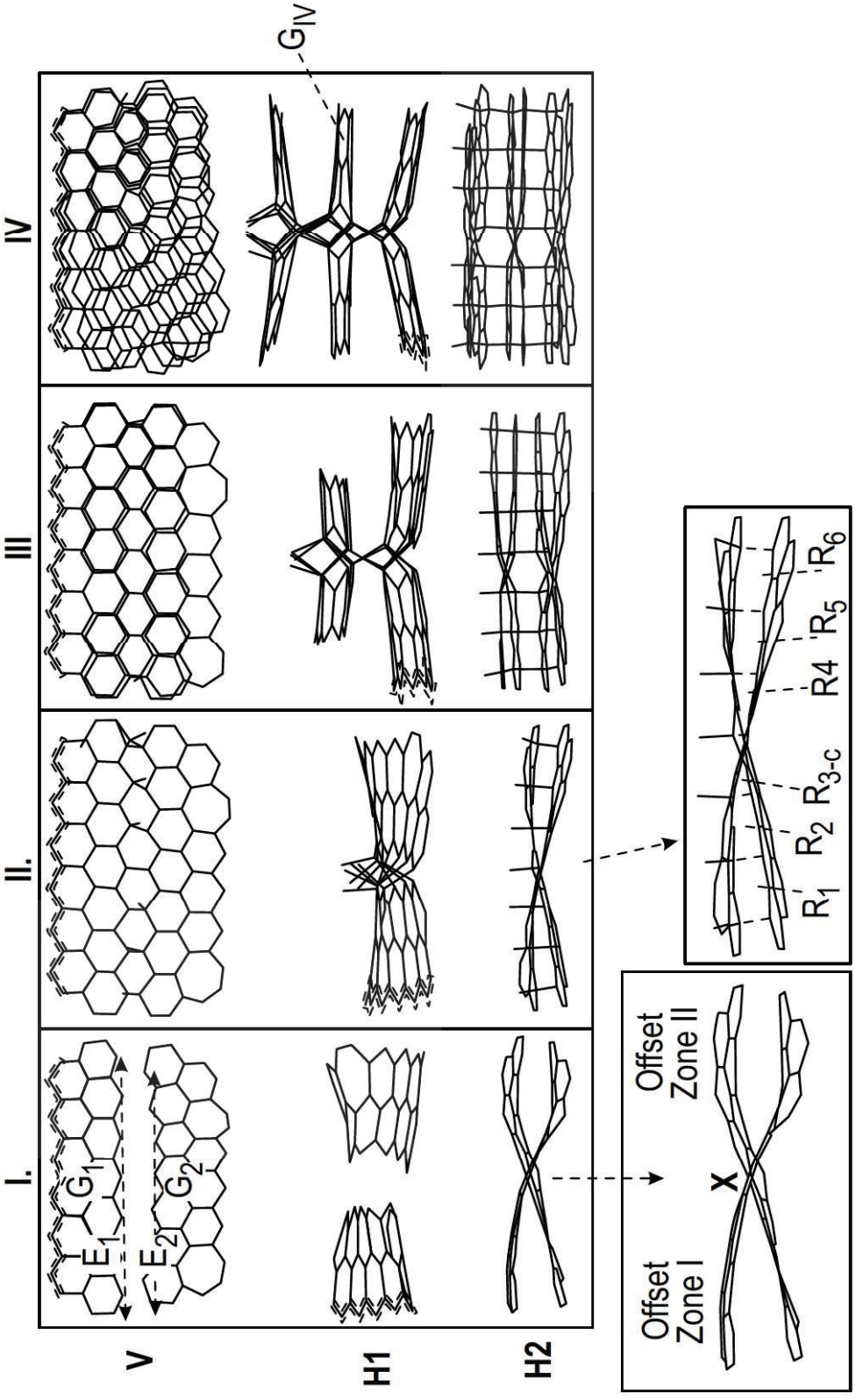

I.
II.
III
IV
G_{IV}
E_1
G_1
E_2
G_2
V
H1
H2
Offset Zone I
Offset Zone II
X
R_1
R_2
R_{3-c}
R4
R_5
R_6

FIG. 61

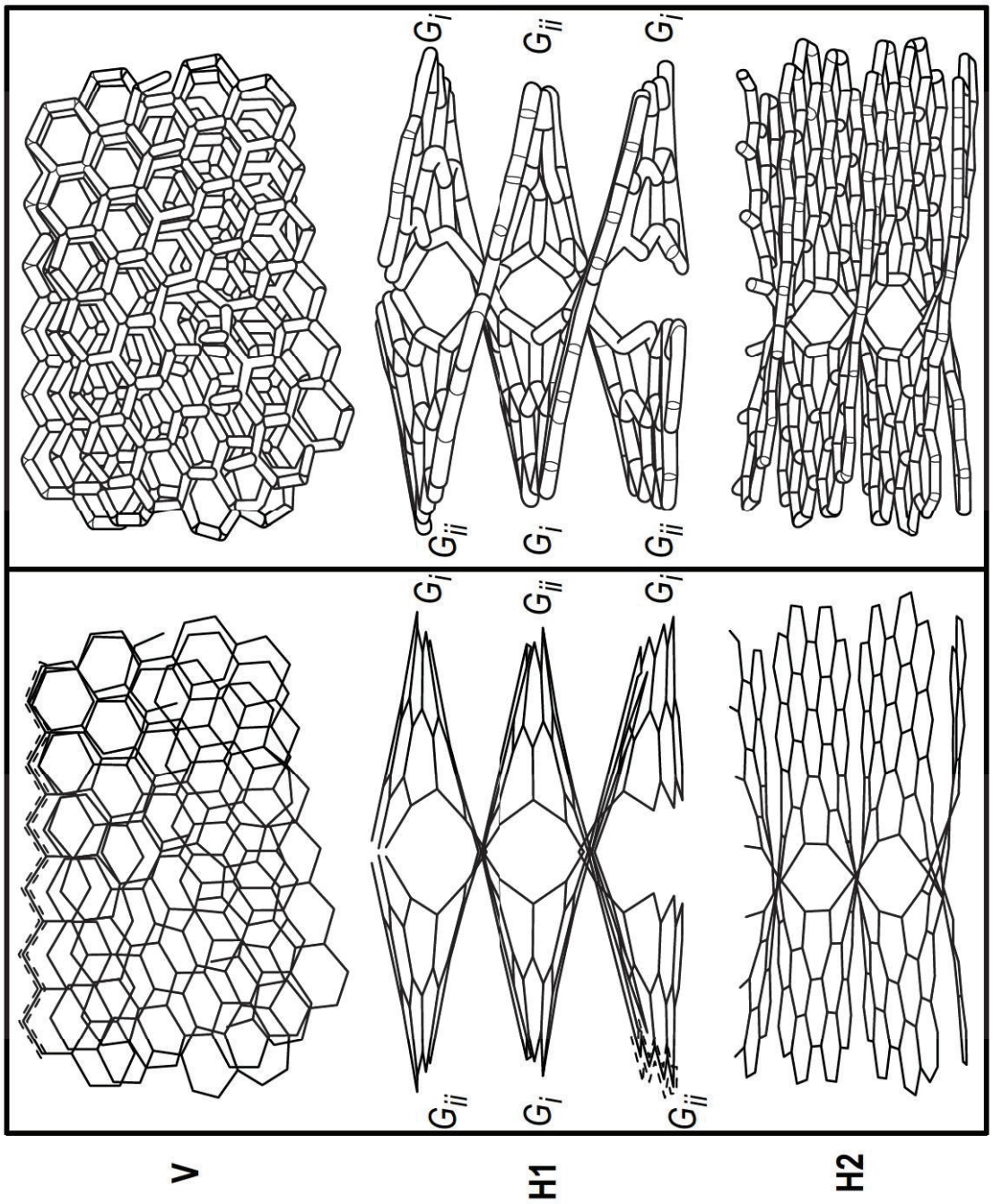
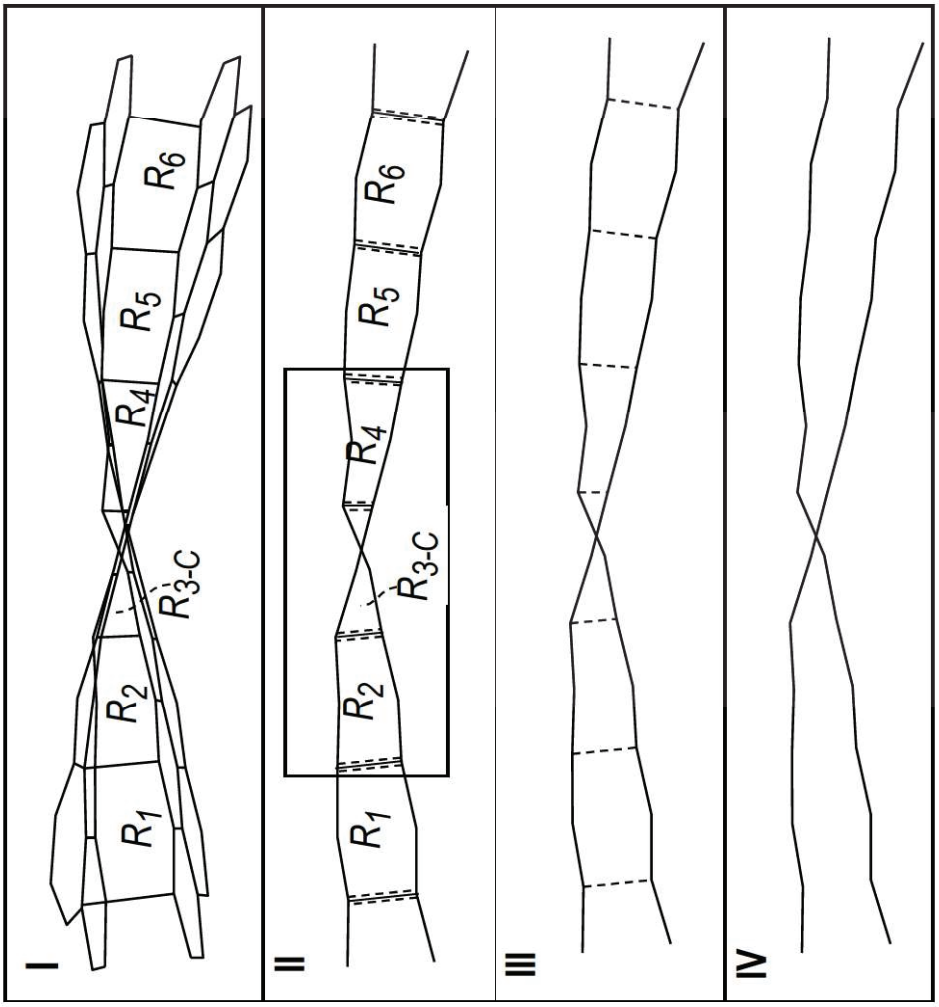


FIG. 62



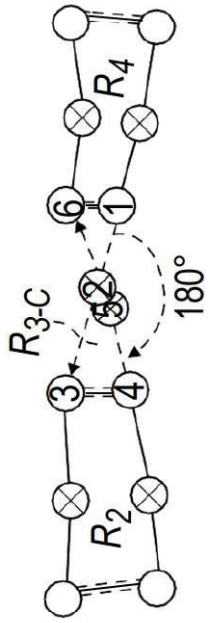


FIG. 63

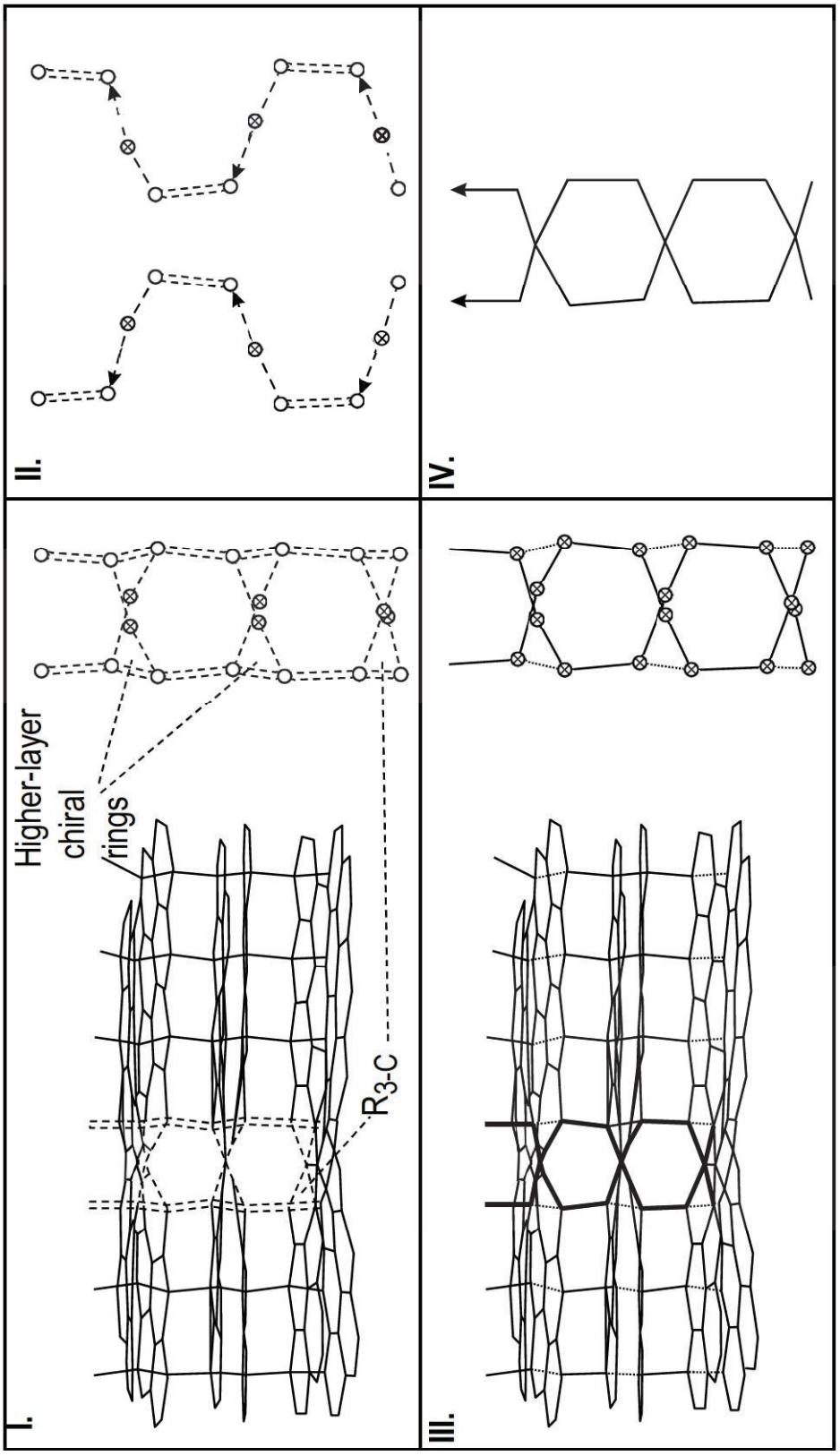


FIG. 64

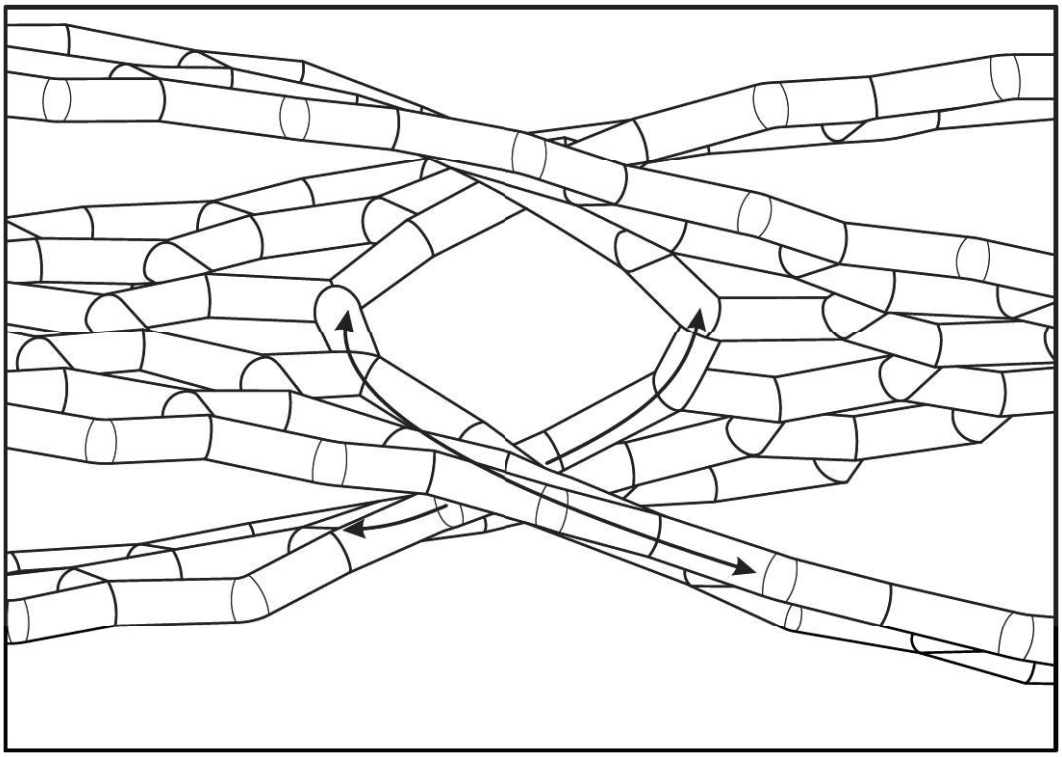


FIG. 65A

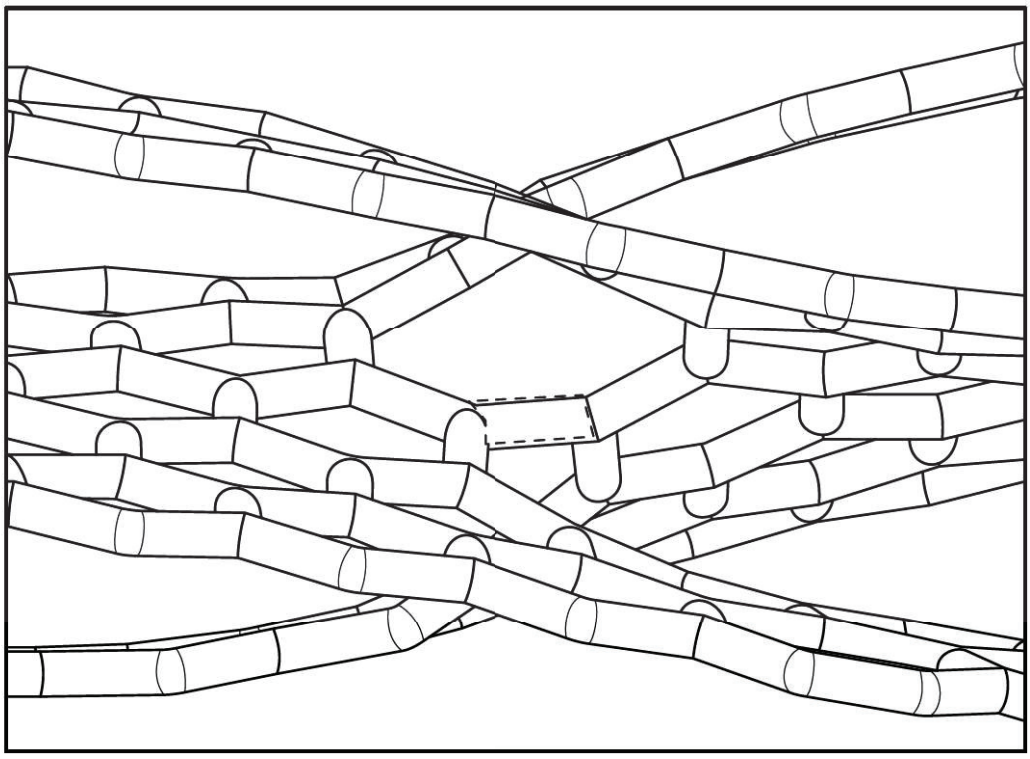


FIG. 65B

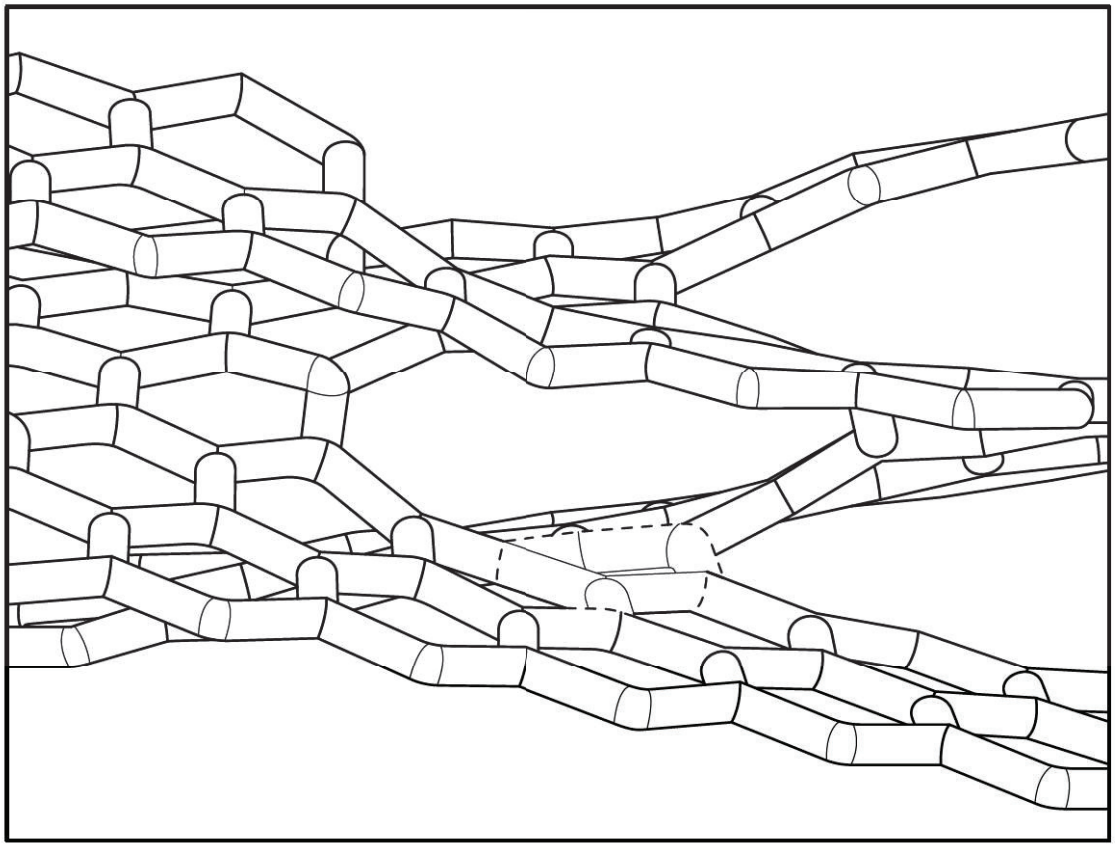


FIG. 65C

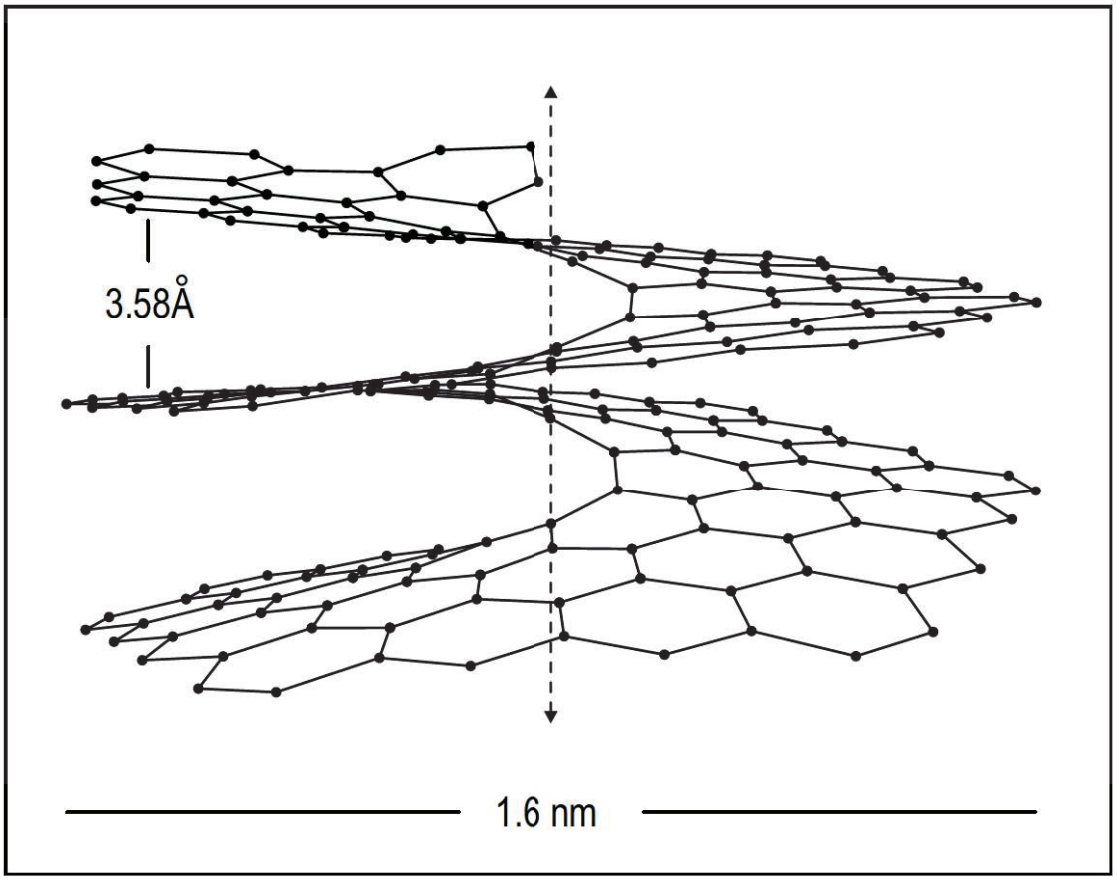


FIG. 66A

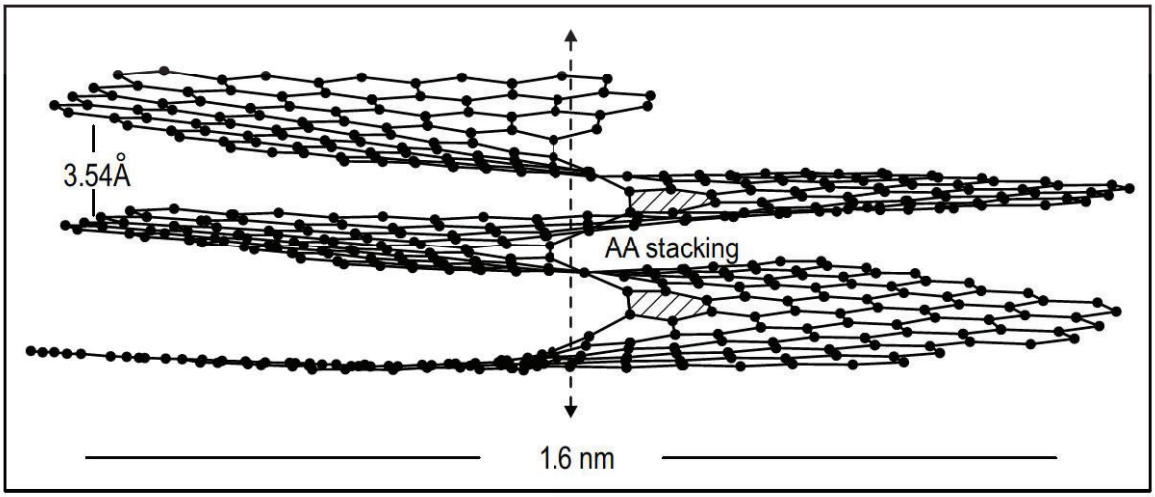


FIG. 66B

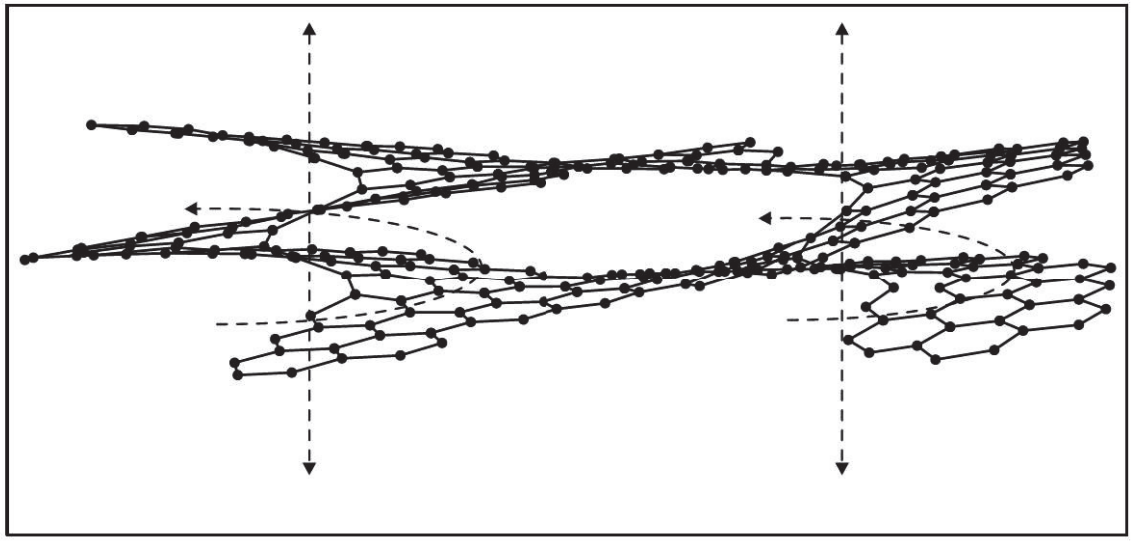


FIG. 66C

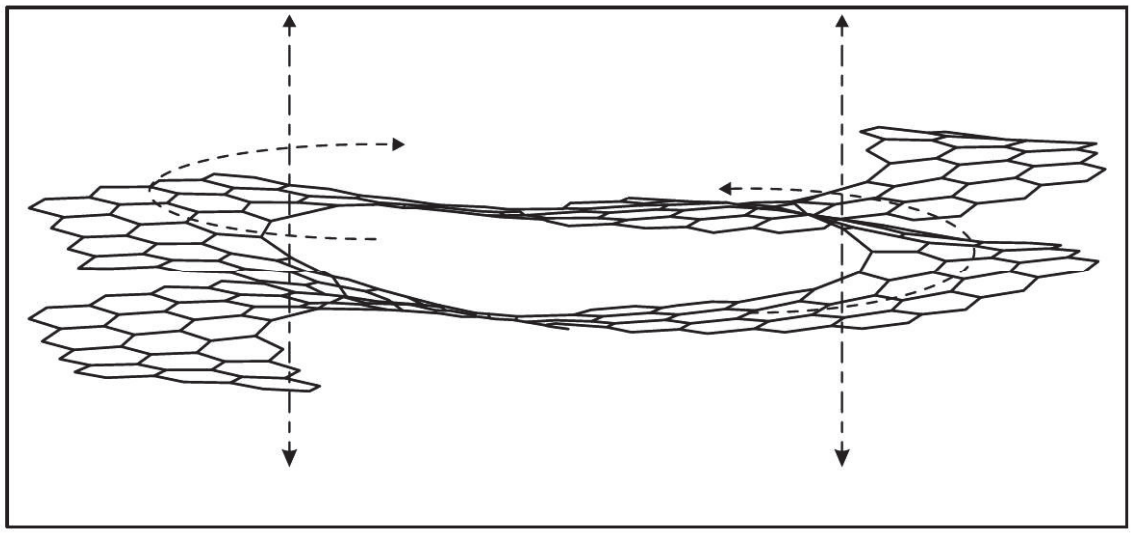


FIG. 66D

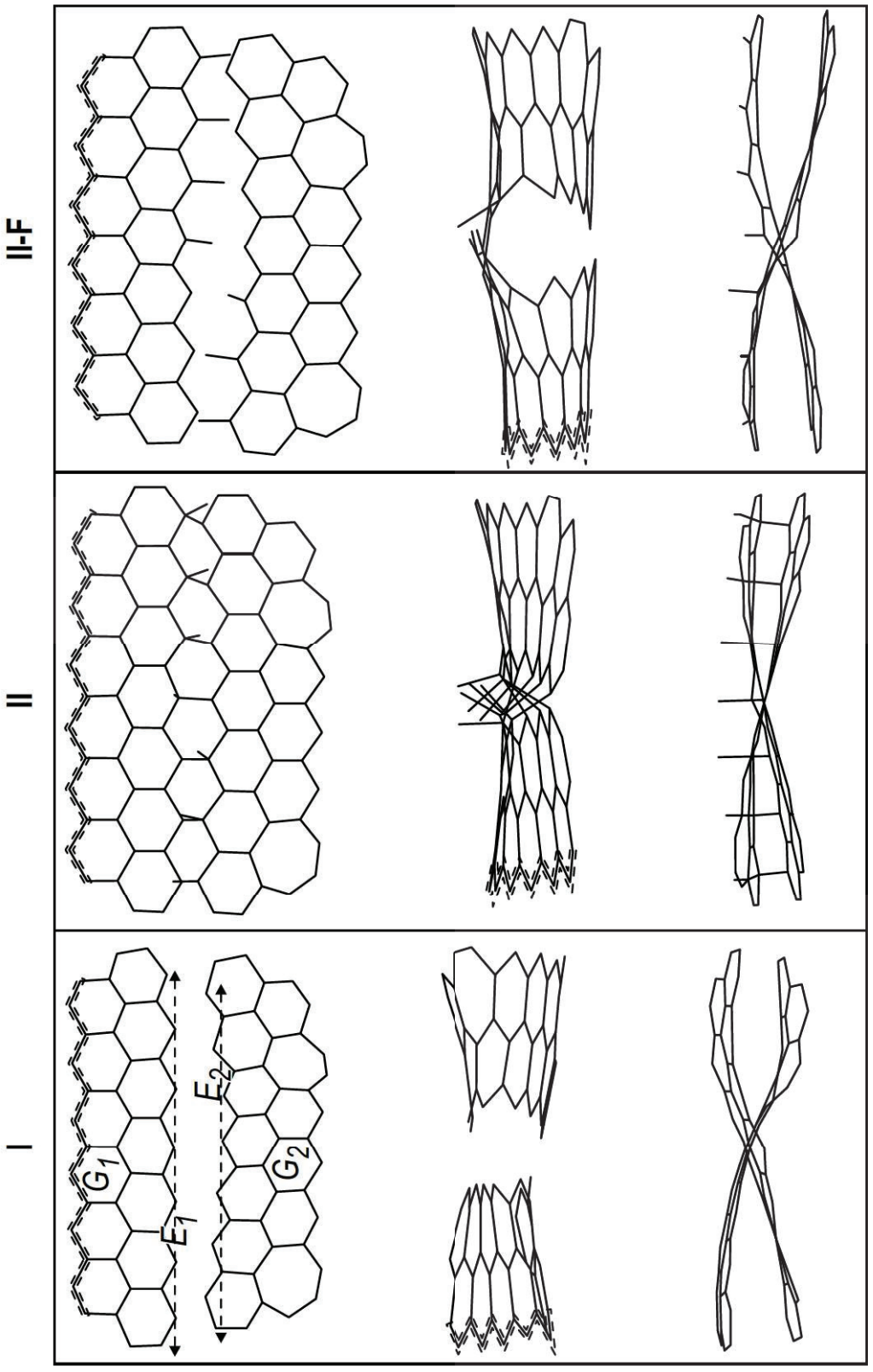


FIG. 67

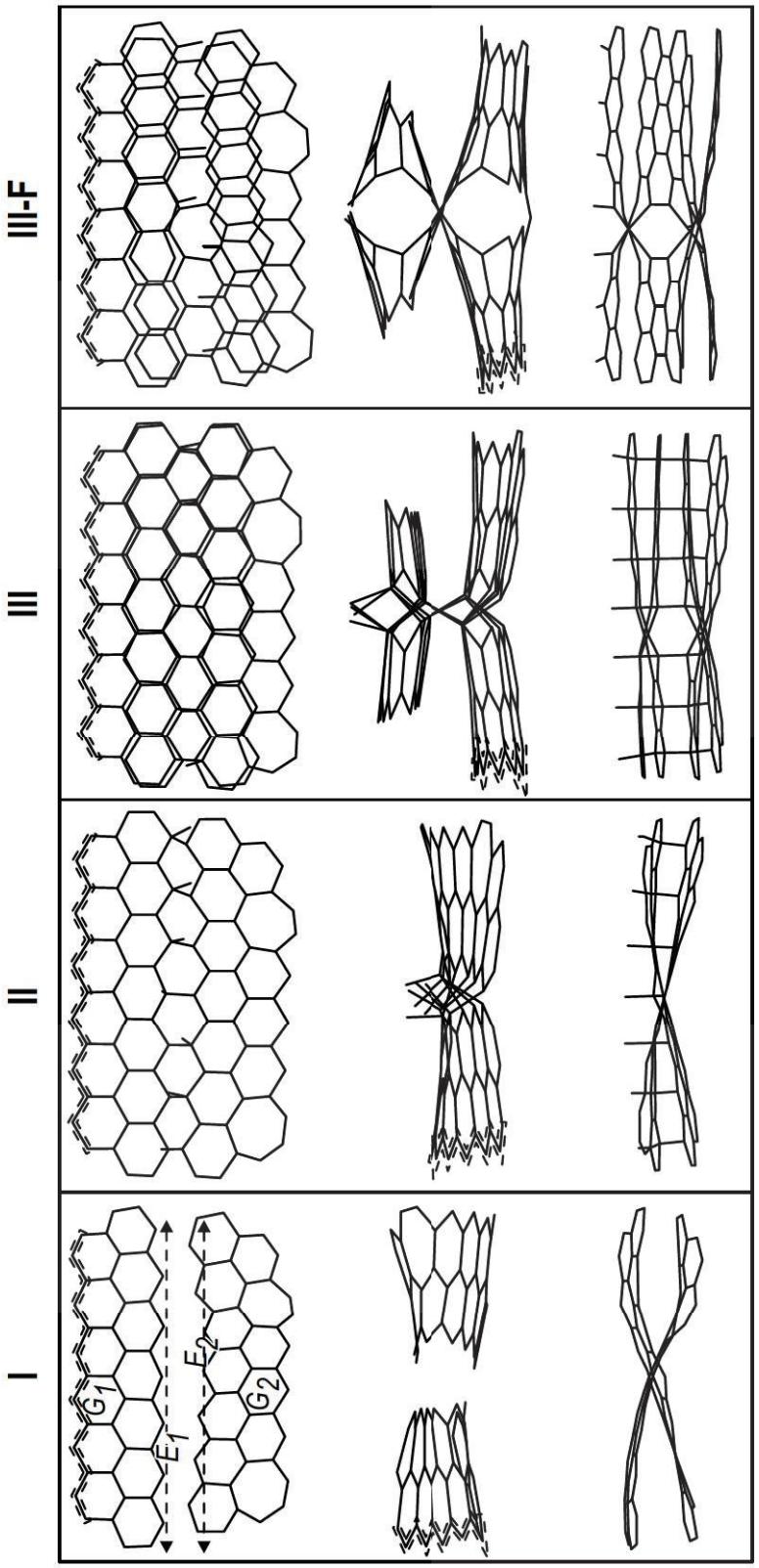


FIG. 68

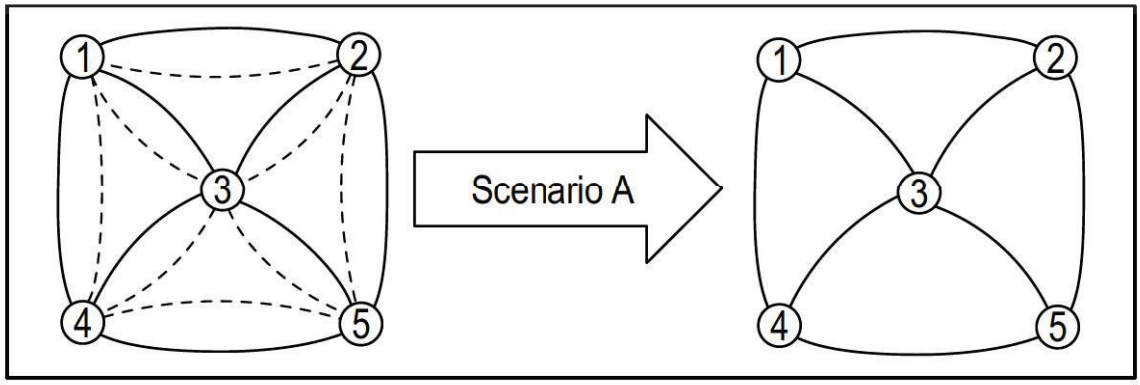


FIG. 69A

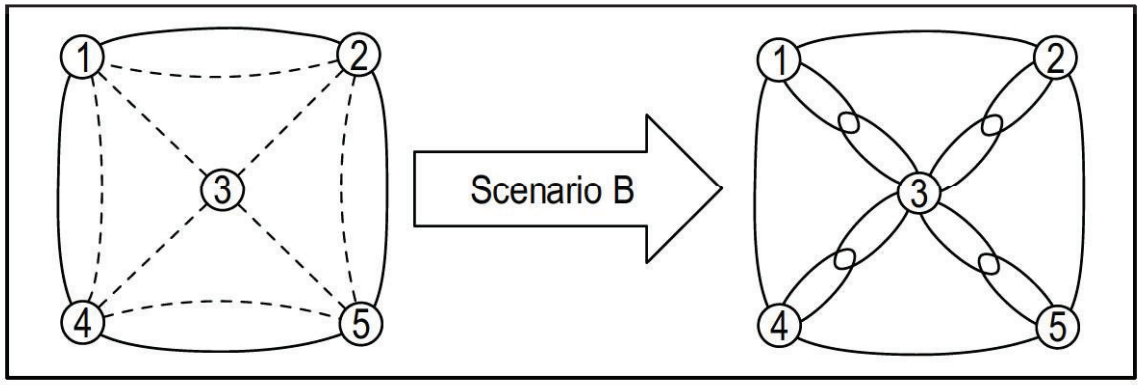


FIG. 69B

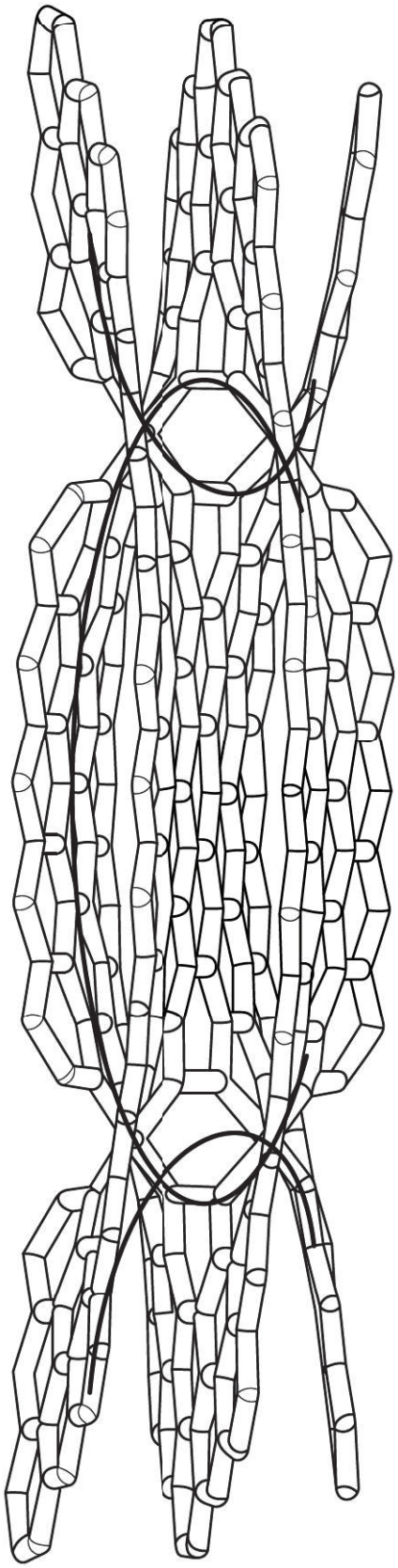


FIG. 70



FIG. 71A

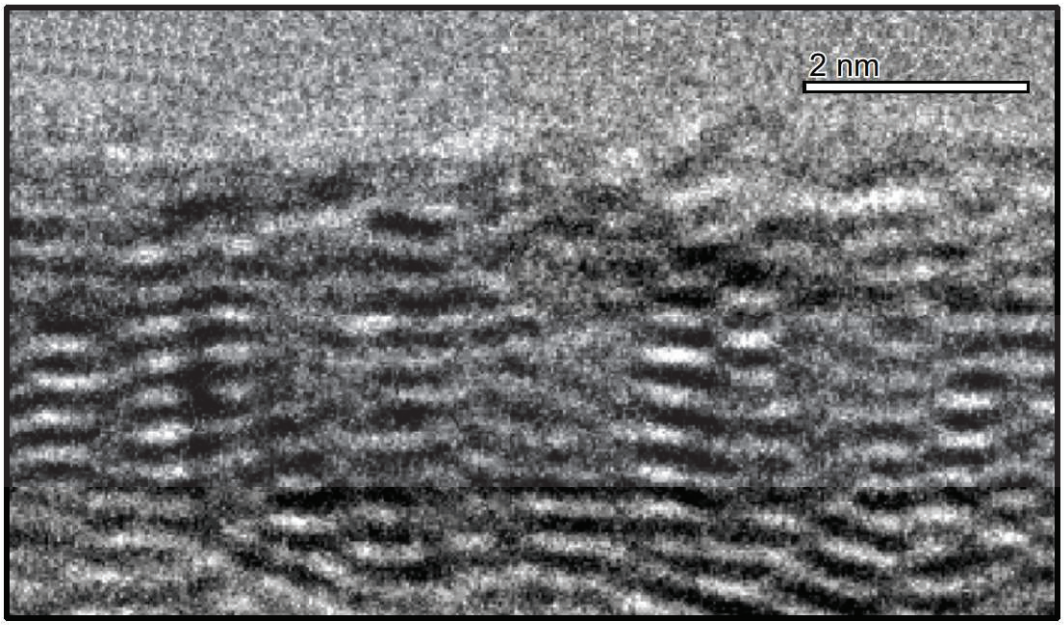


FIG. 71B

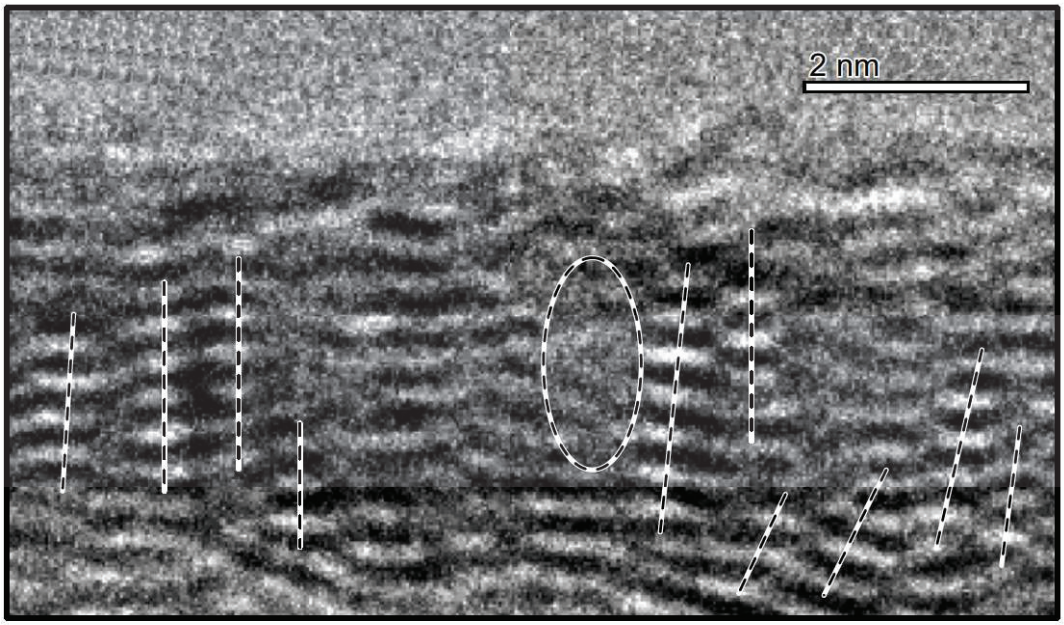


FIG. 71C

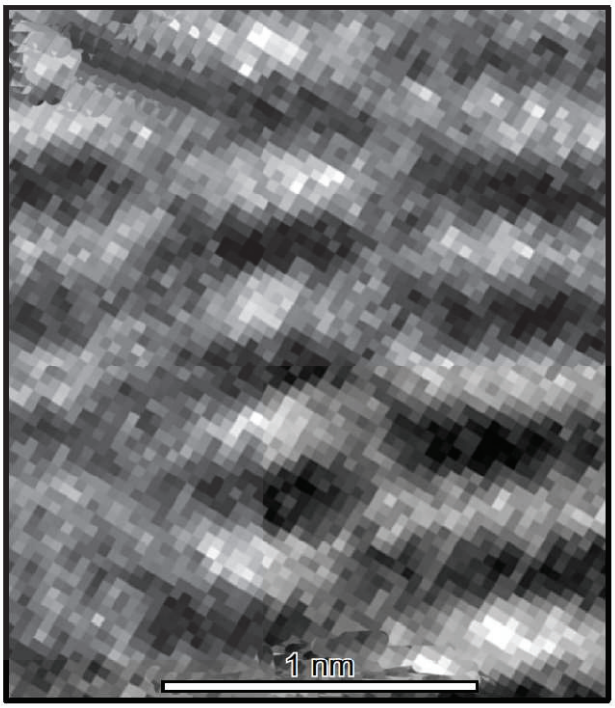


FIG. 71D

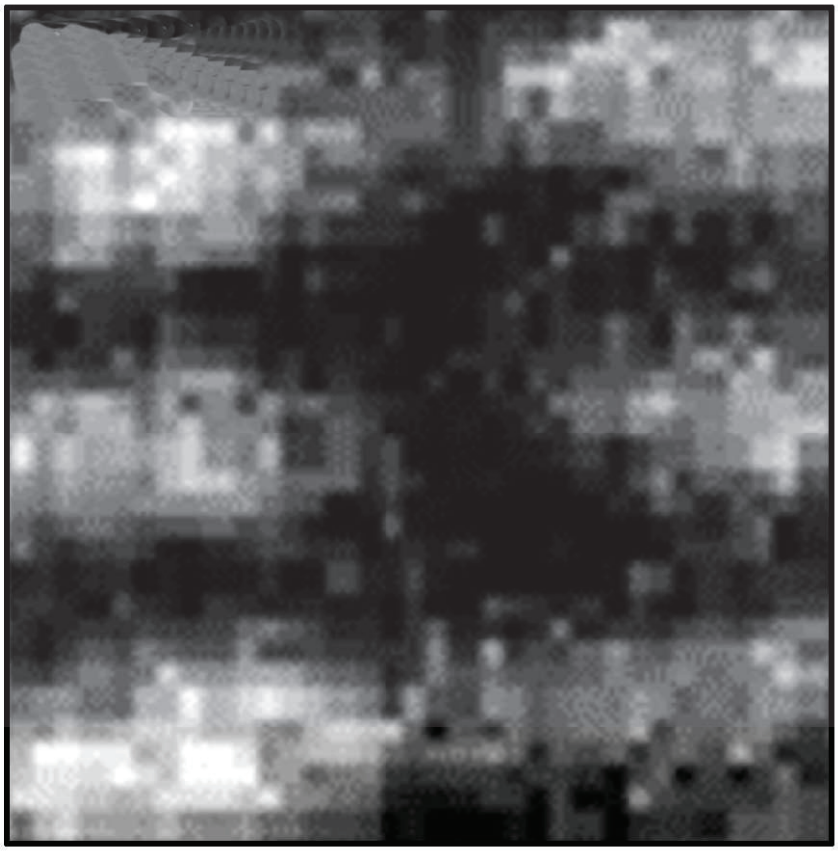


FIG. 71E

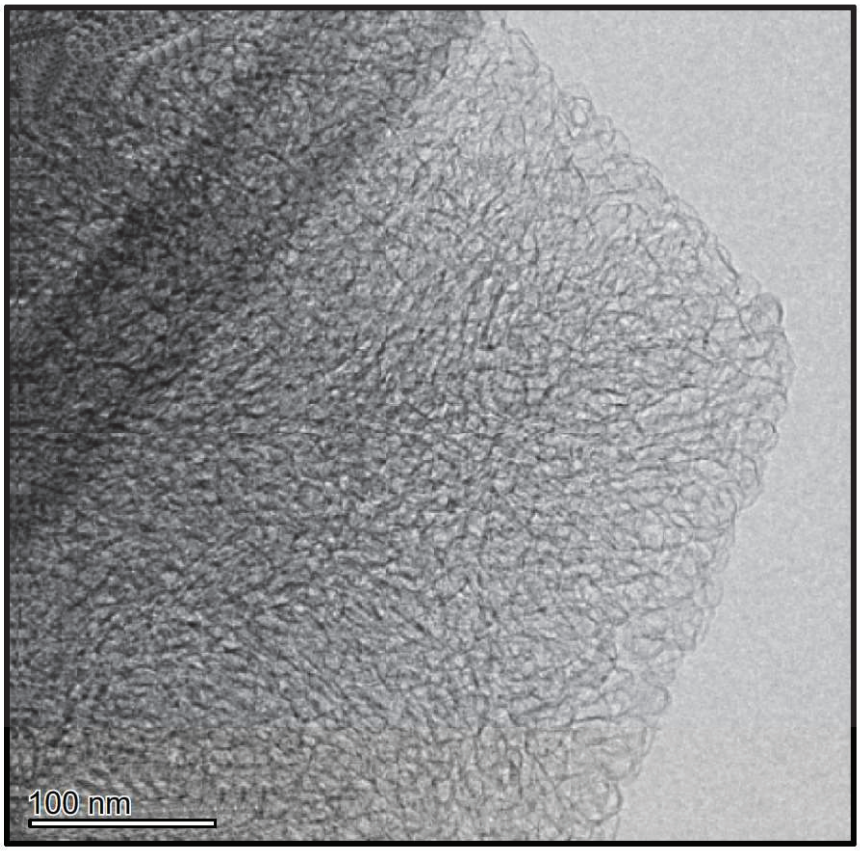


FIG. 72A

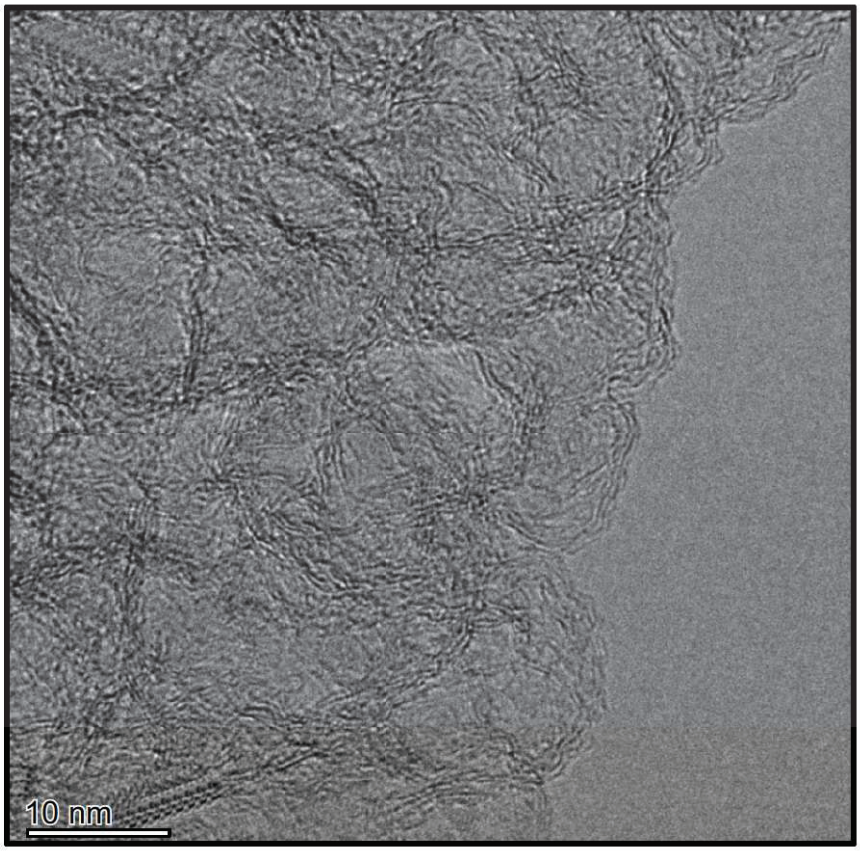


FIG. 72B

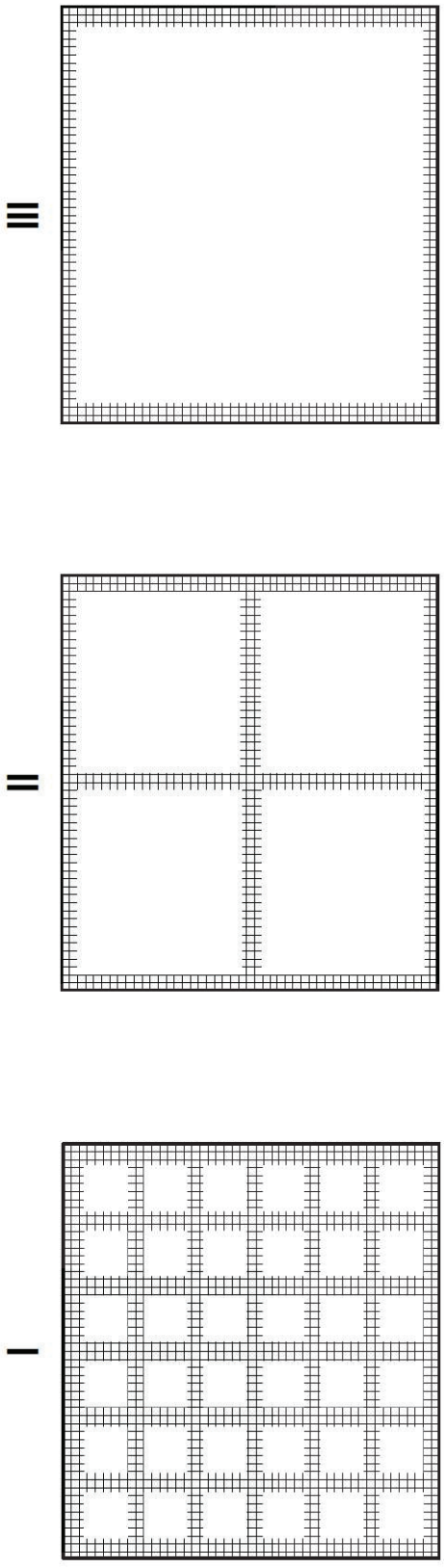


FIG. 73

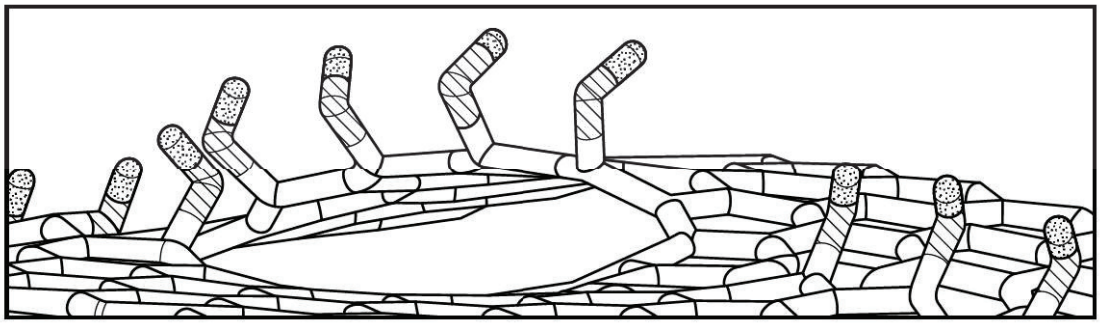


FIG. 74A

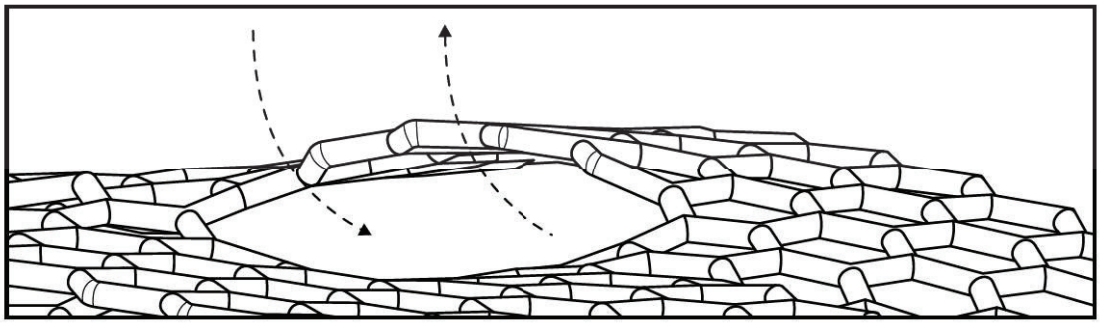


FIG. 74B

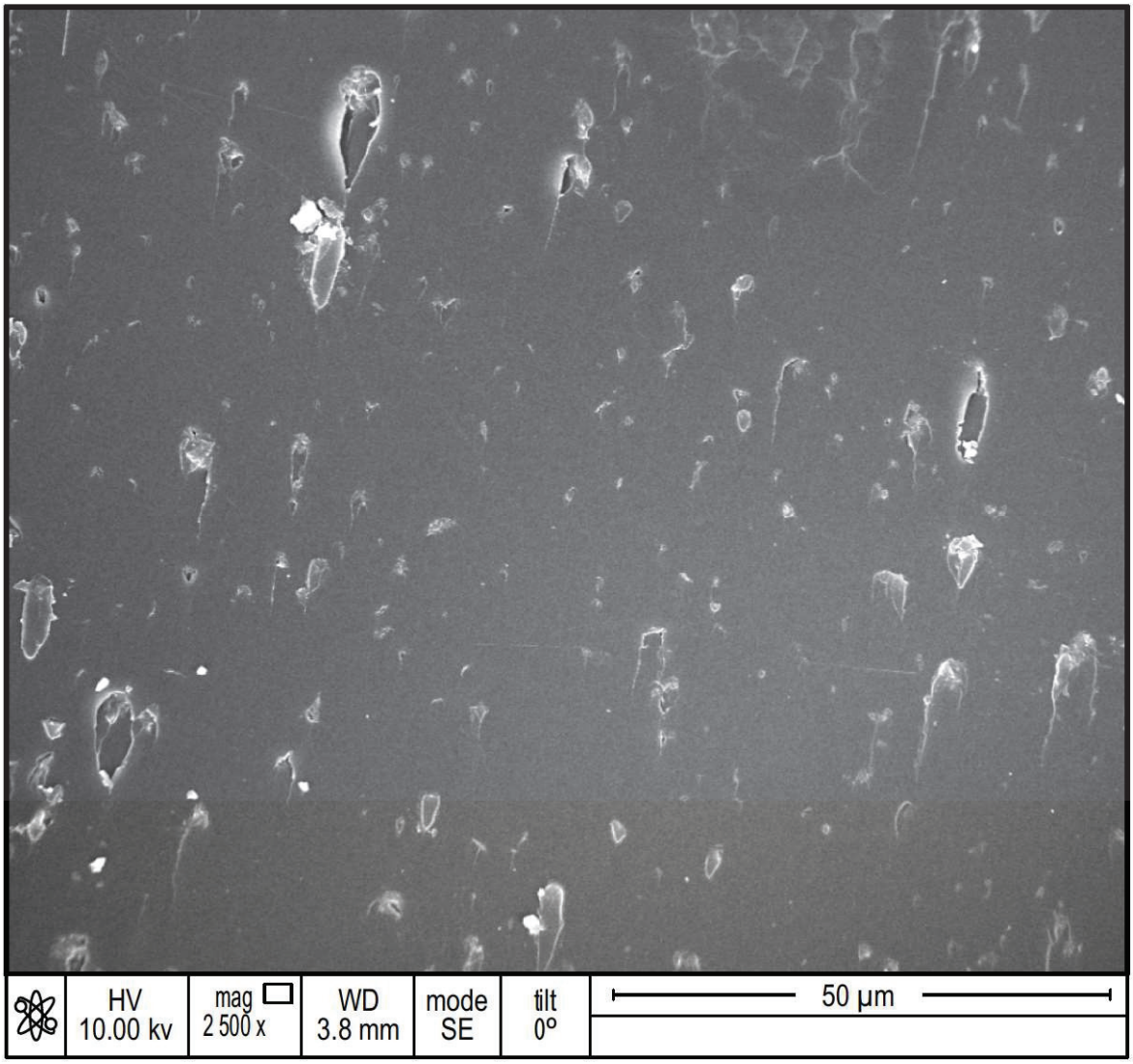


FIG. 75A

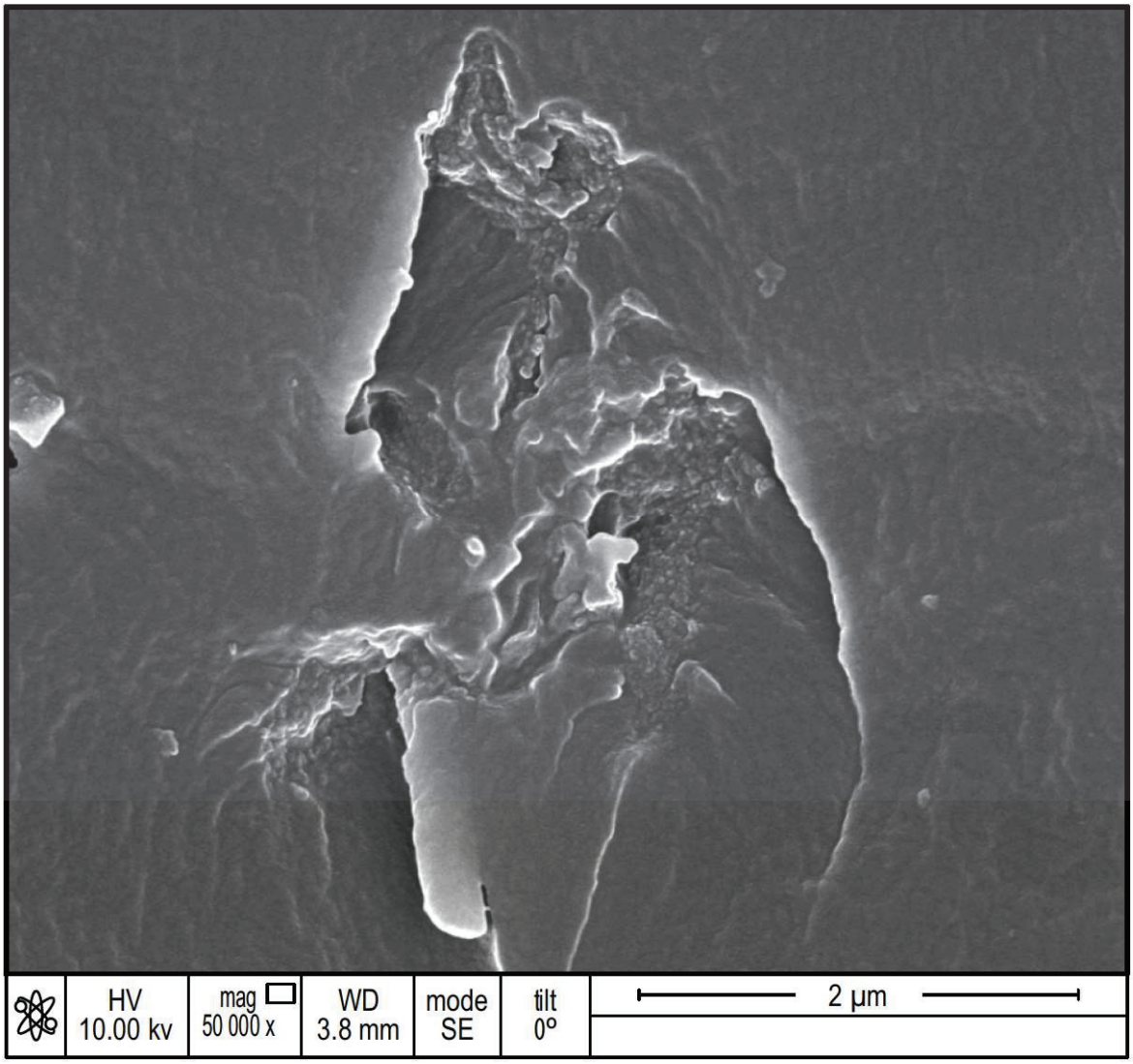


FIG. 75B

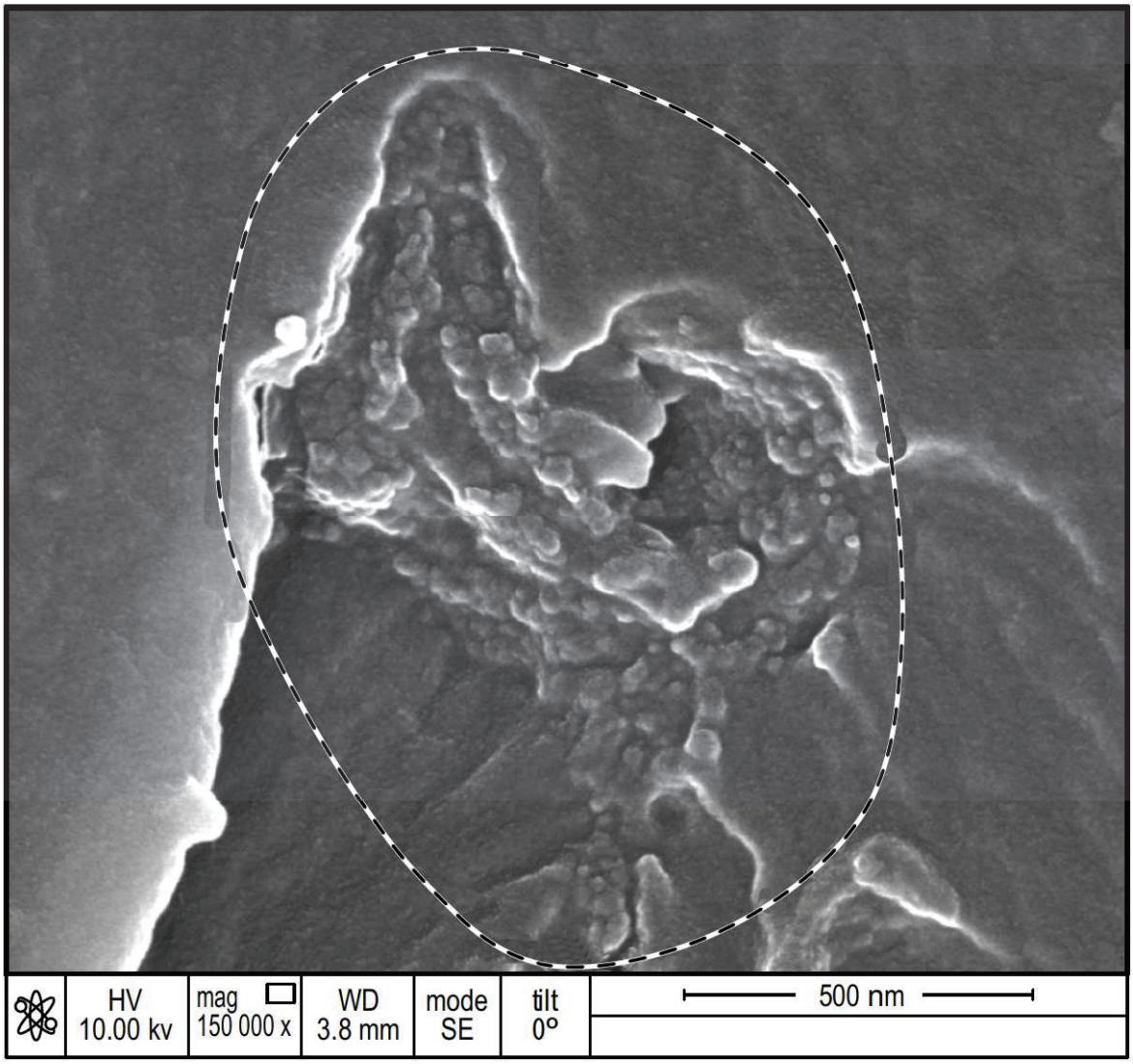


FIG. 75C

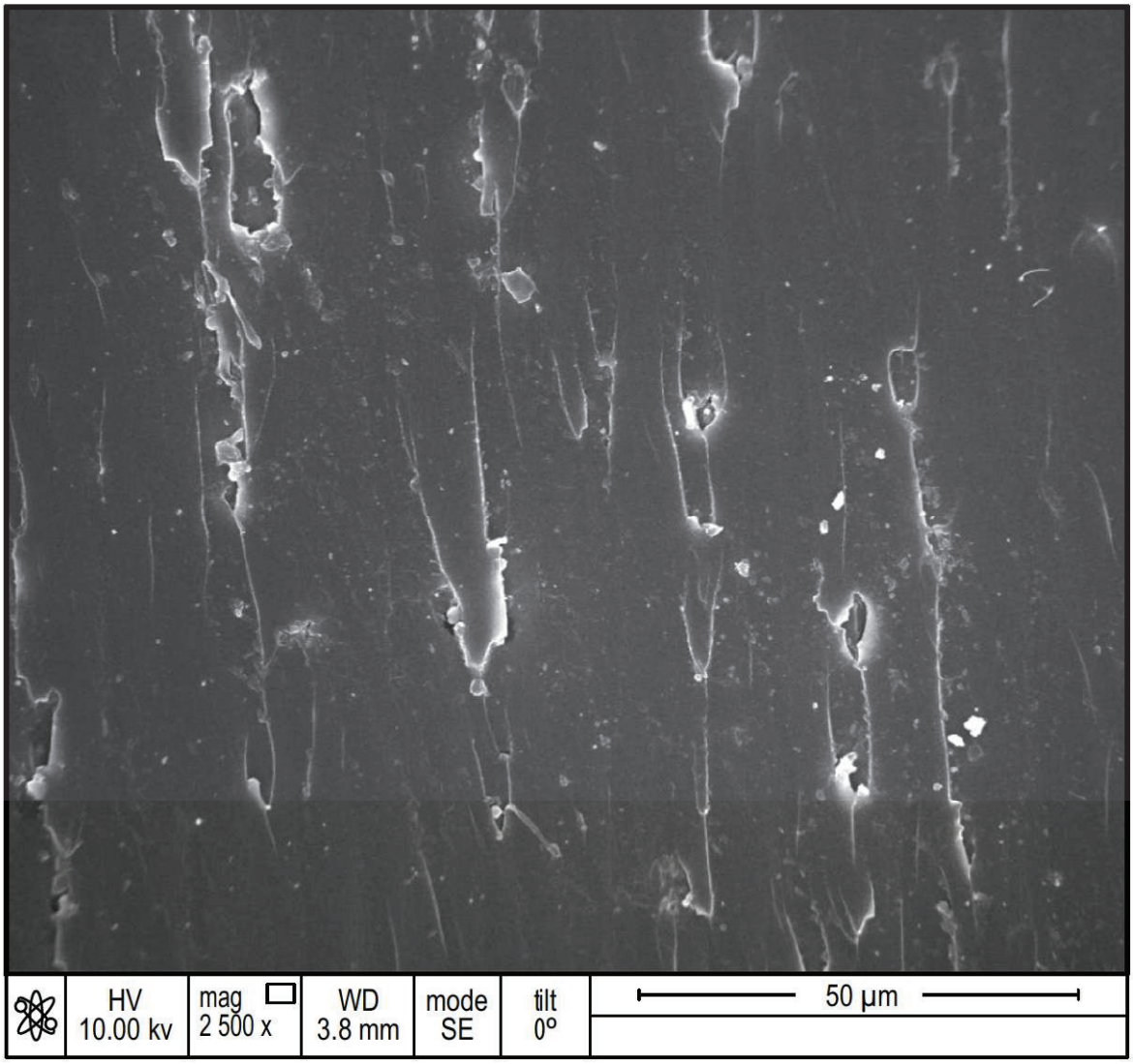


FIG. 76A

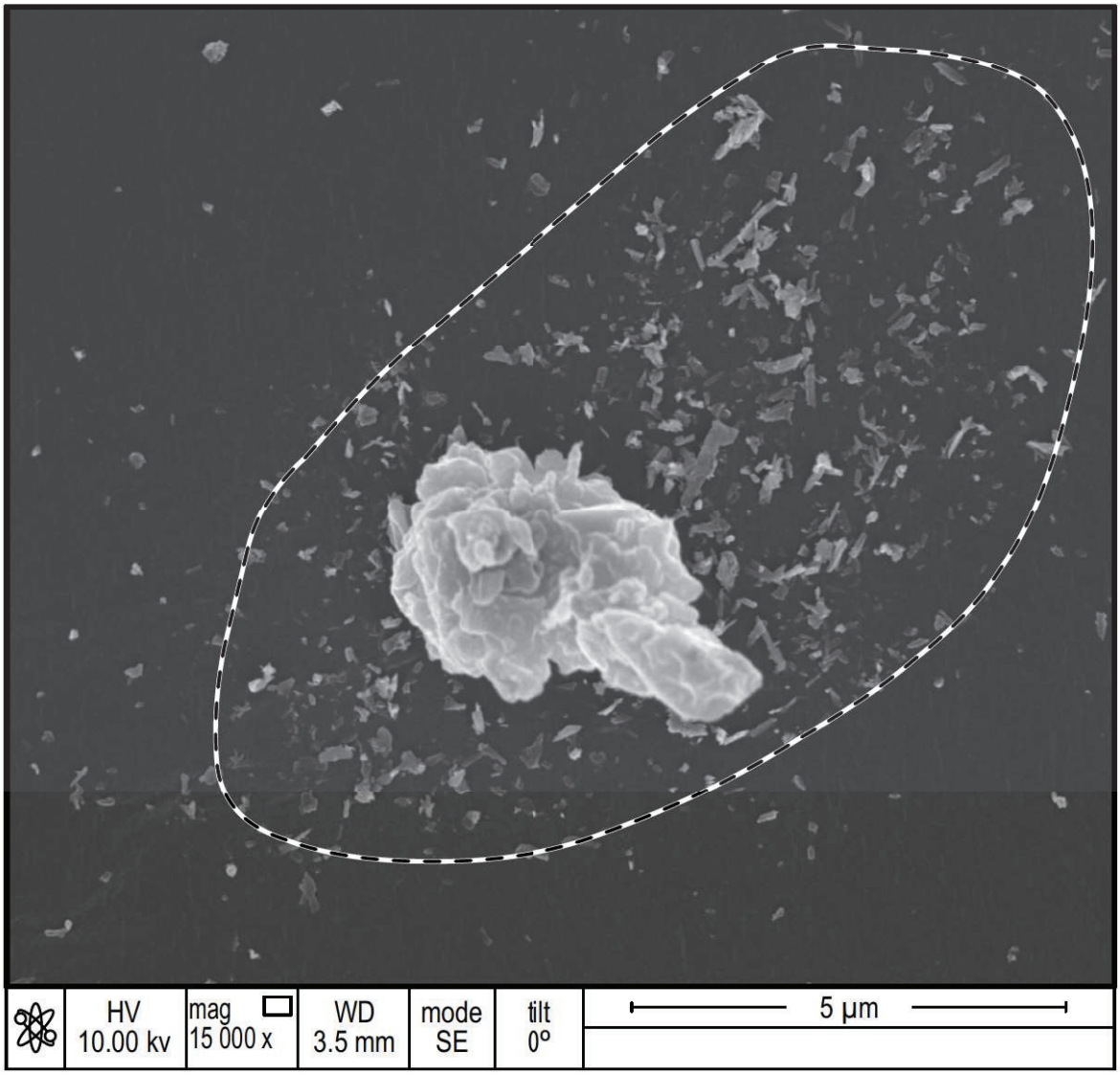


FIG. 76B

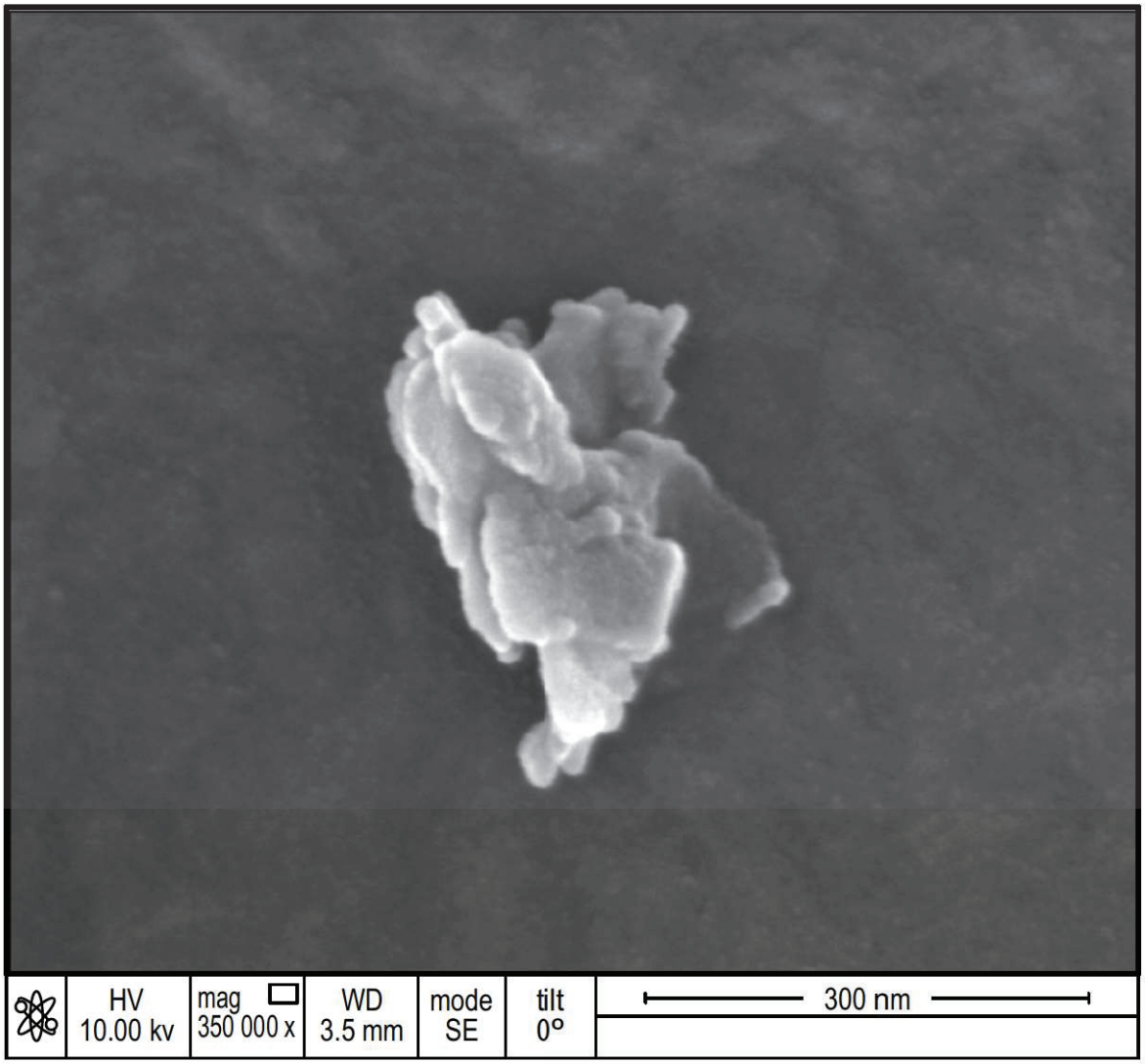


FIG. 76C

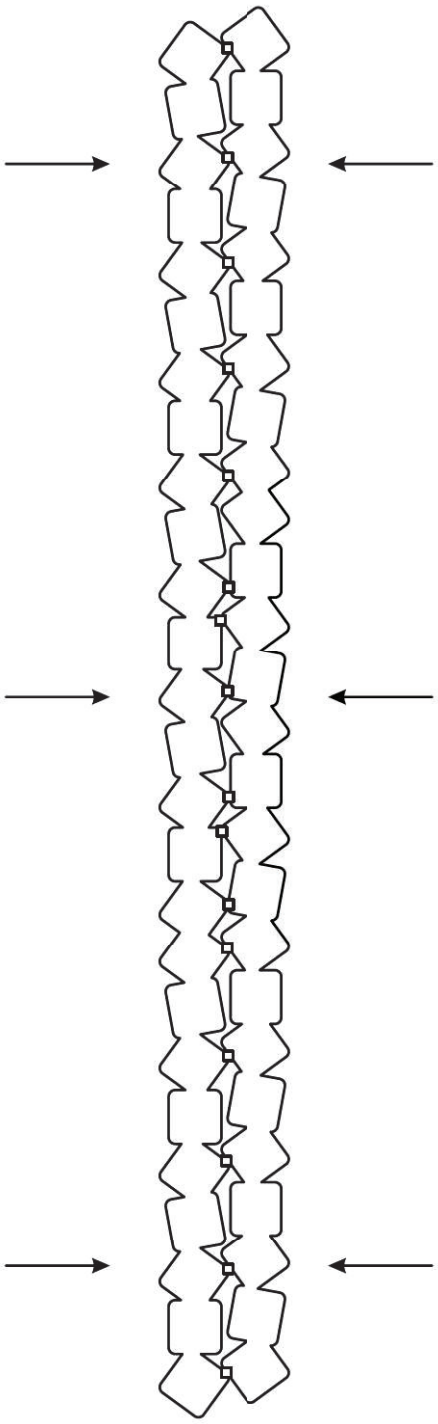


FIG. 77

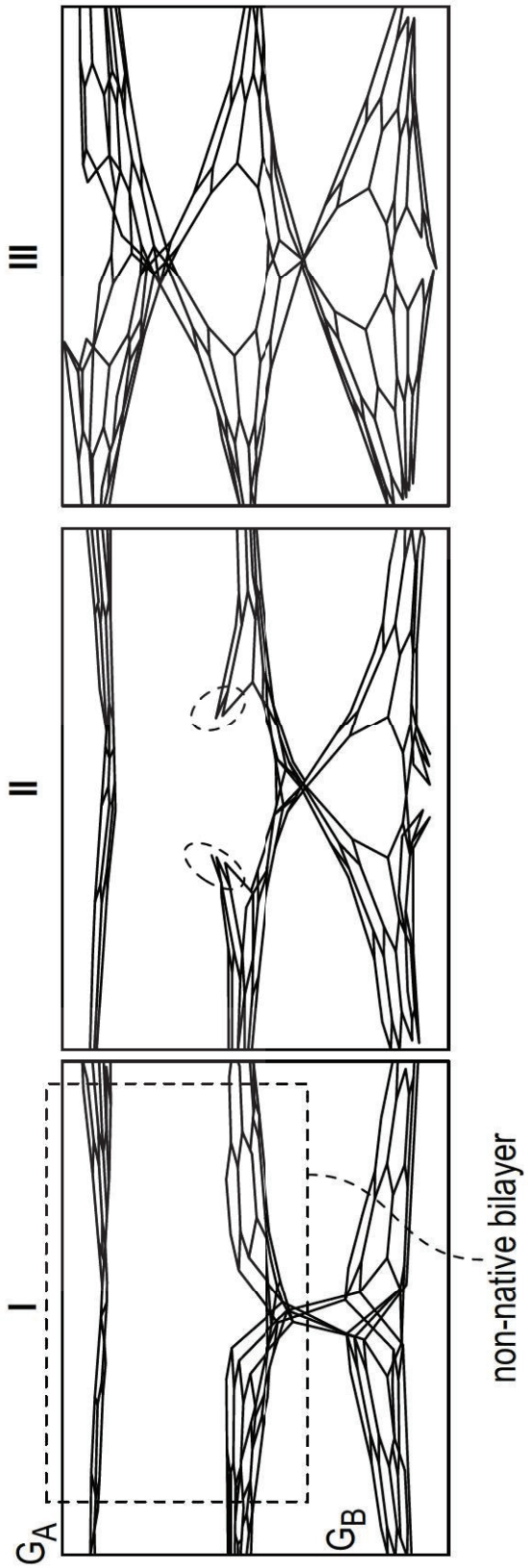


FIG. 78

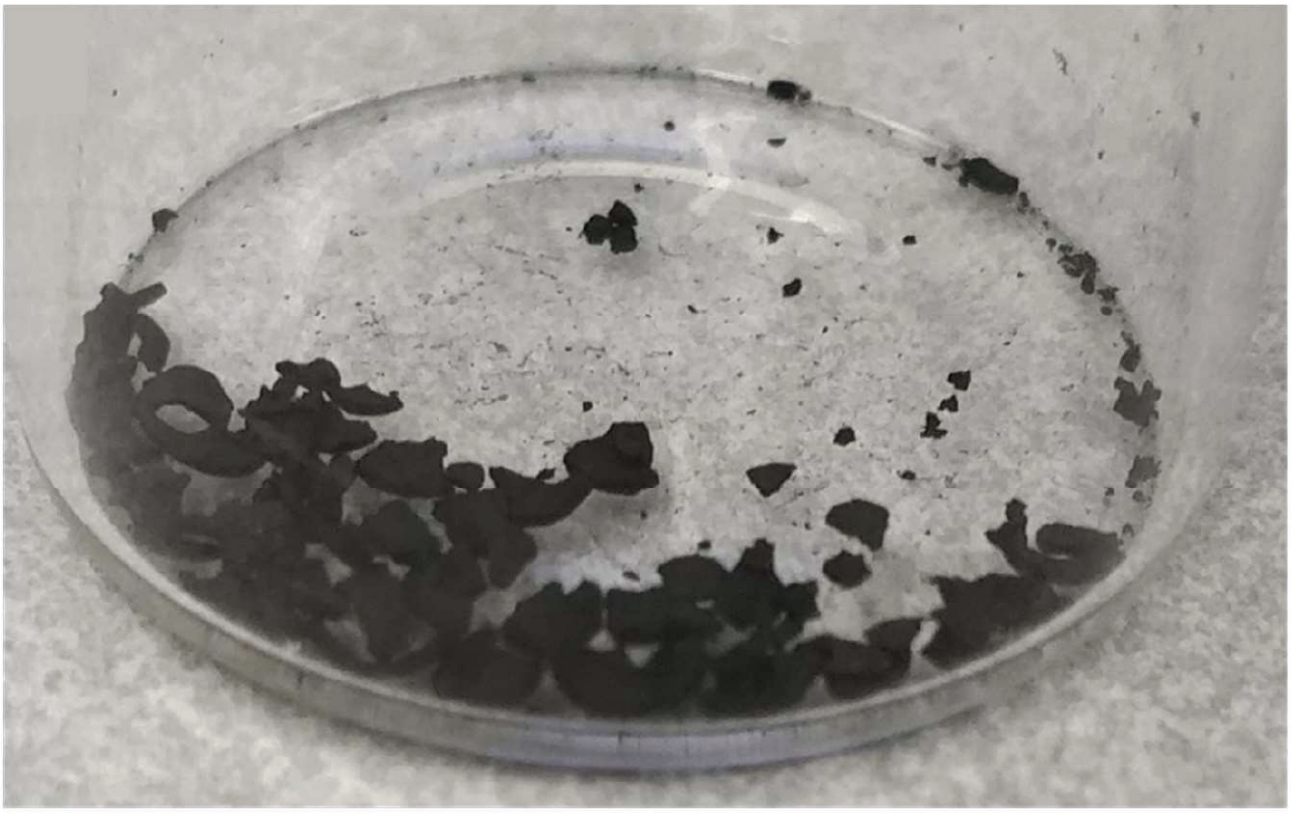


Fig. 79A

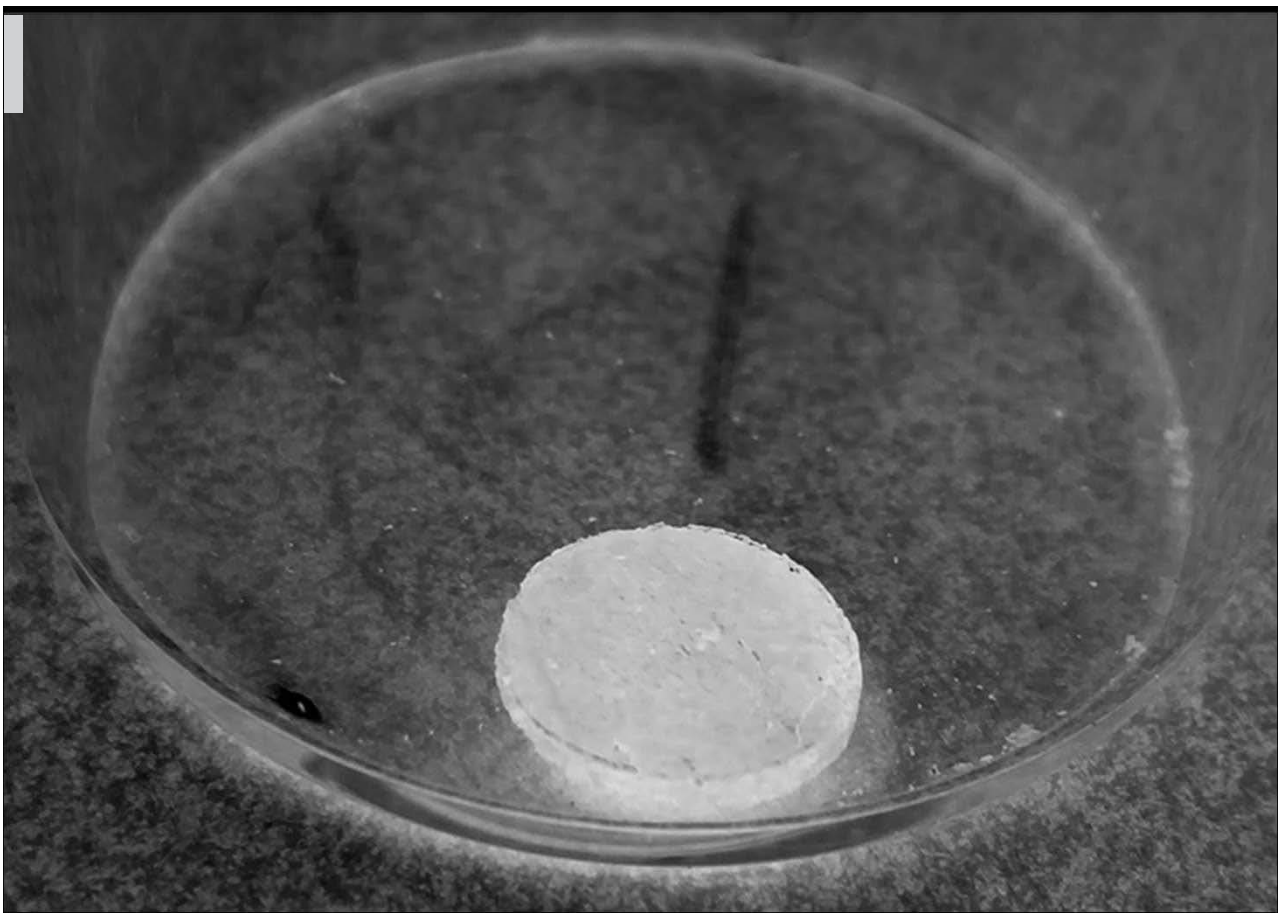


Fig. 79B

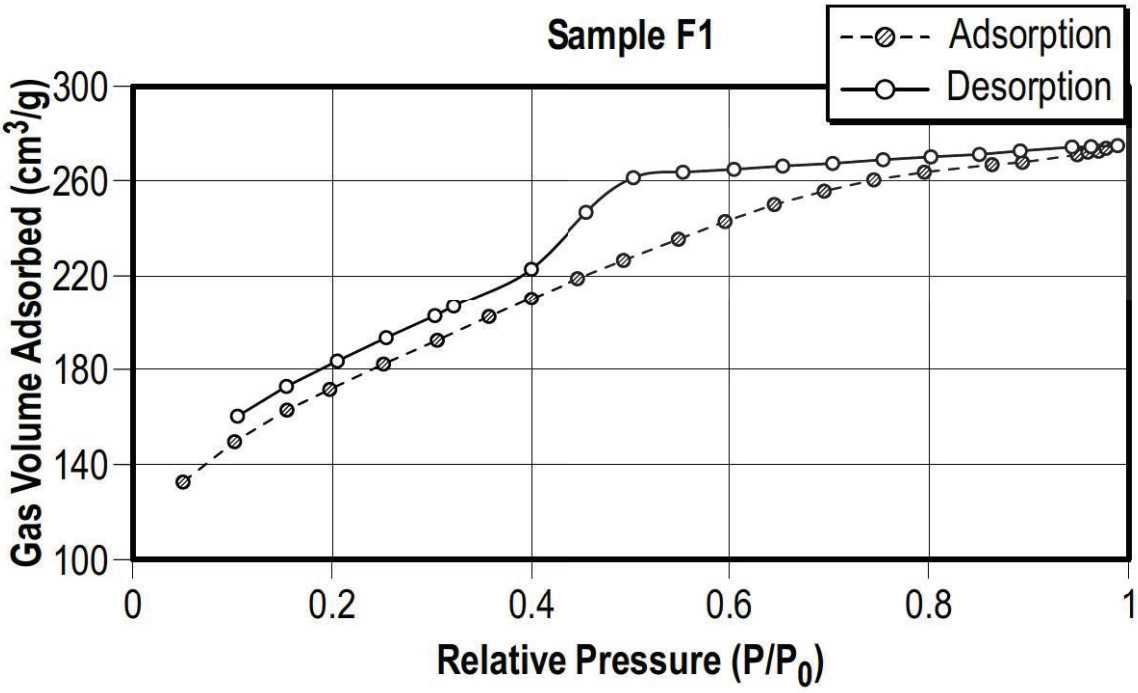

Sample F1
Adsorption
Desorption
Gas Volume Adsorbed (cm3/g)
300
260
220
180
140
100
0
0.2
0.4
0.6
0.8
1
Relative Pressure (P/P0)

FIG. 80A

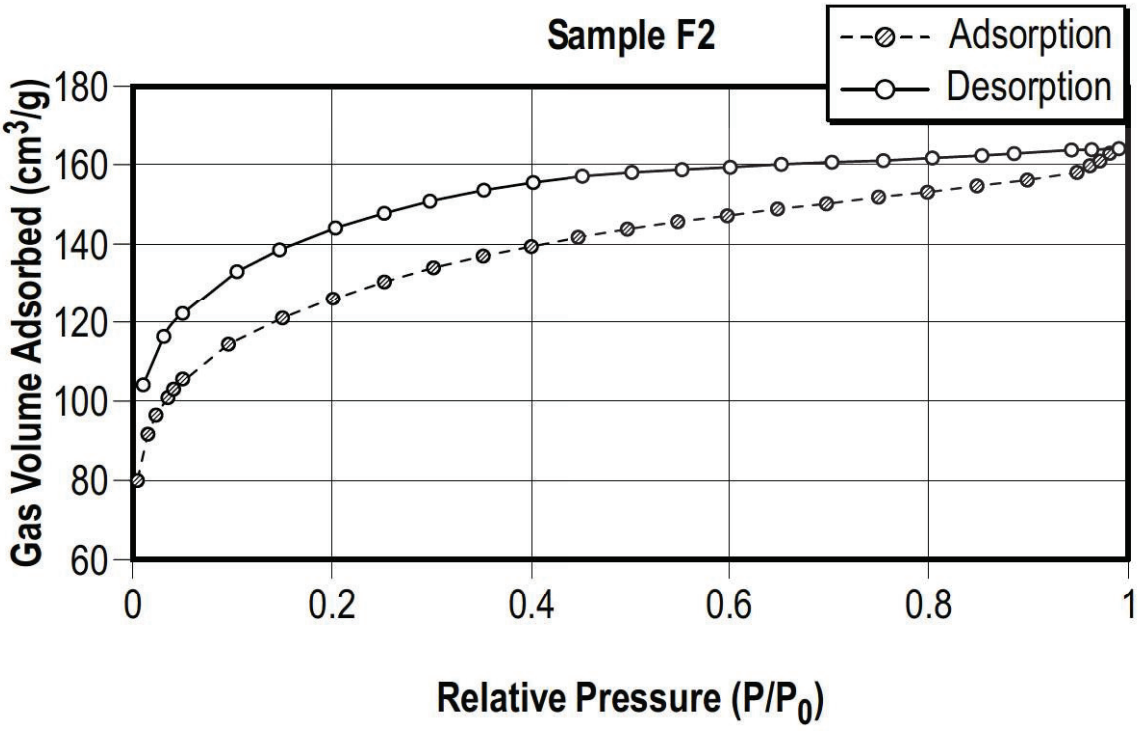

Sample F2
Adsorption
Desorption
Gas Volume Adsorbed (cm3/g)
180
160
140
120
100
80
60
0
0.2
0.4
0.6
0.8
1
Relative Pressure (P/P0)

FIG. 80B

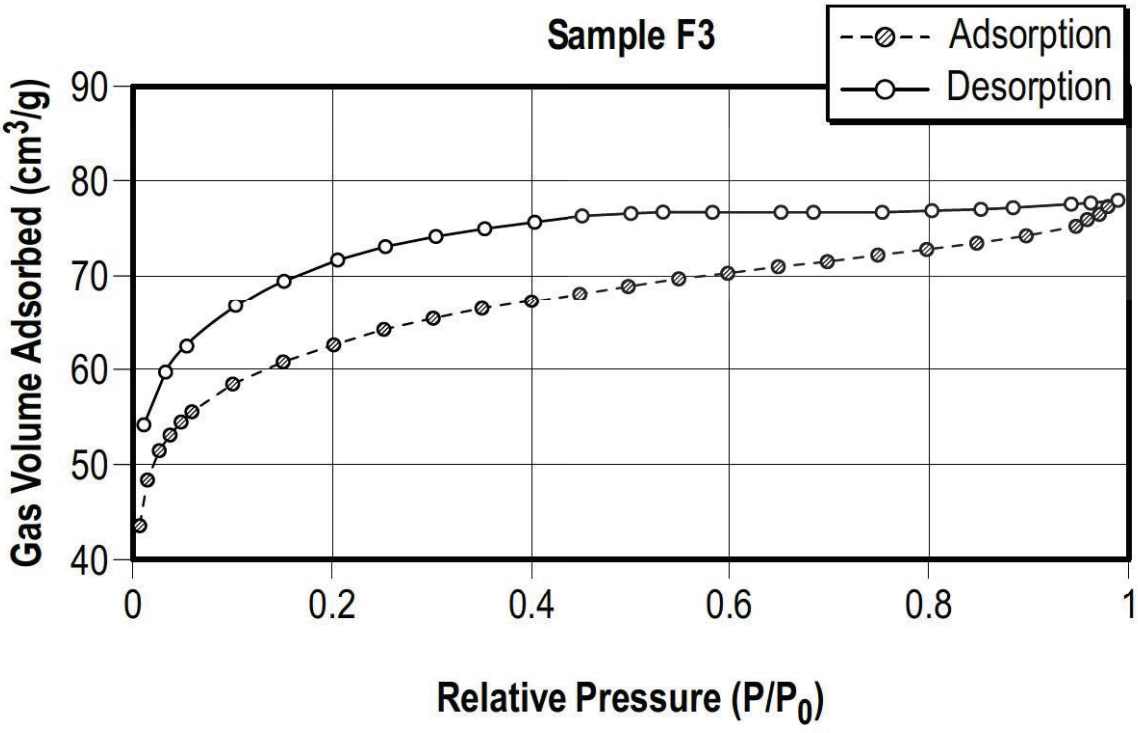

Sample F3
Adsorption
Desorption
Gas Volume Adsorbed (cm3/g)
90
80
70
60
50
40
0
0.2
0.4
0.6
0.8
1
Relative Pressure (P/P0)

FIG. 80C

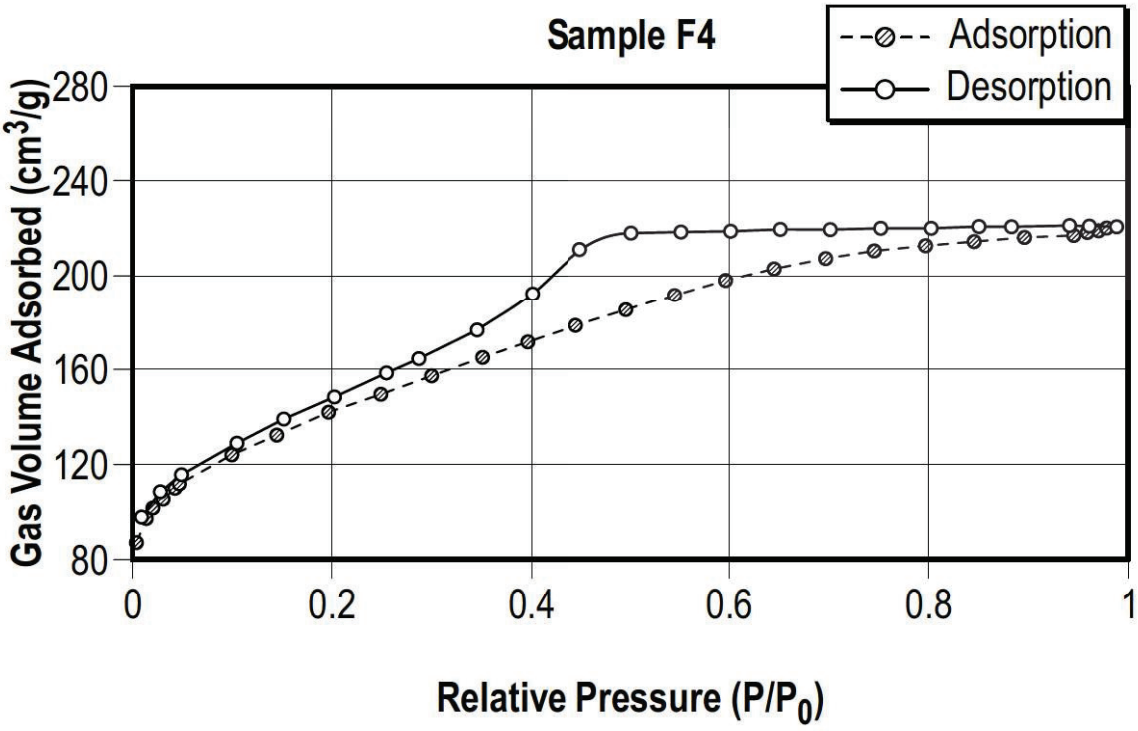

Sample F4
Adsorption
Desorption
Gas Volume Adsorbed (cm3/g)
280
240
200
160
120
80
0
0.2
0.4
0.6
0.8
1
Relative Pressure (P/P0)

FIG. 80D

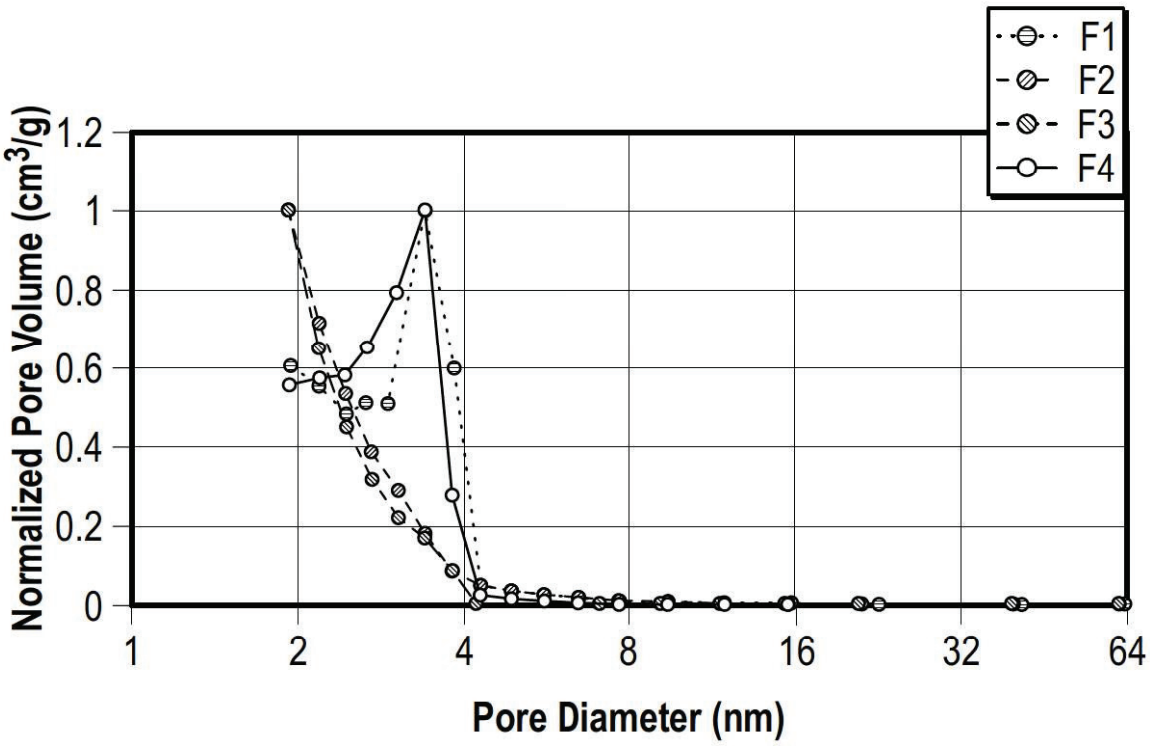

F1
F2
F3
F4
Normalized Pore Volume (cm3/g)
1.2
1
0.8
0.6
0.4
0.2
0
1
2
4
8
16
32
64
Pore Diameter (nm)

FIG. 81

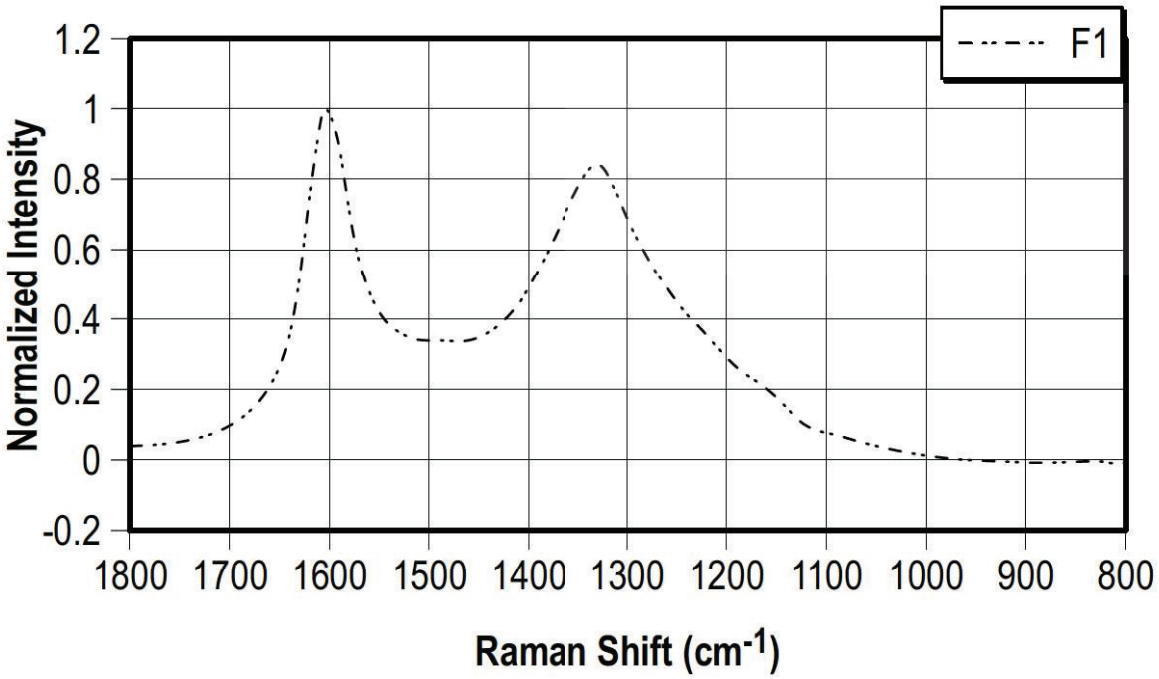

F1
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
Normalized Intensity
1800 1700 1600 1500 1400 1300 1200 1100 1000 900 800
Raman Shift (cm-1)

FIG. 82A

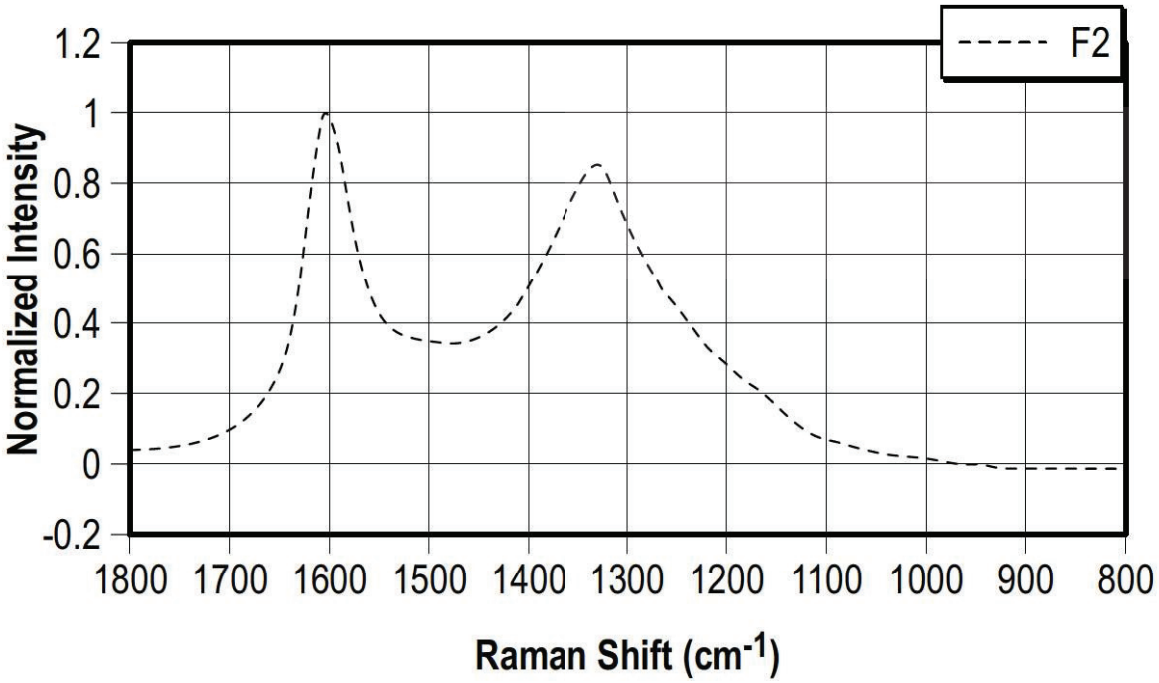

F2
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
Normalized Intensity
1800 1700 1600 1500 1400 1300 1200 1100 1000 900 800
Raman Shift (cm-1)

FIG. 82B

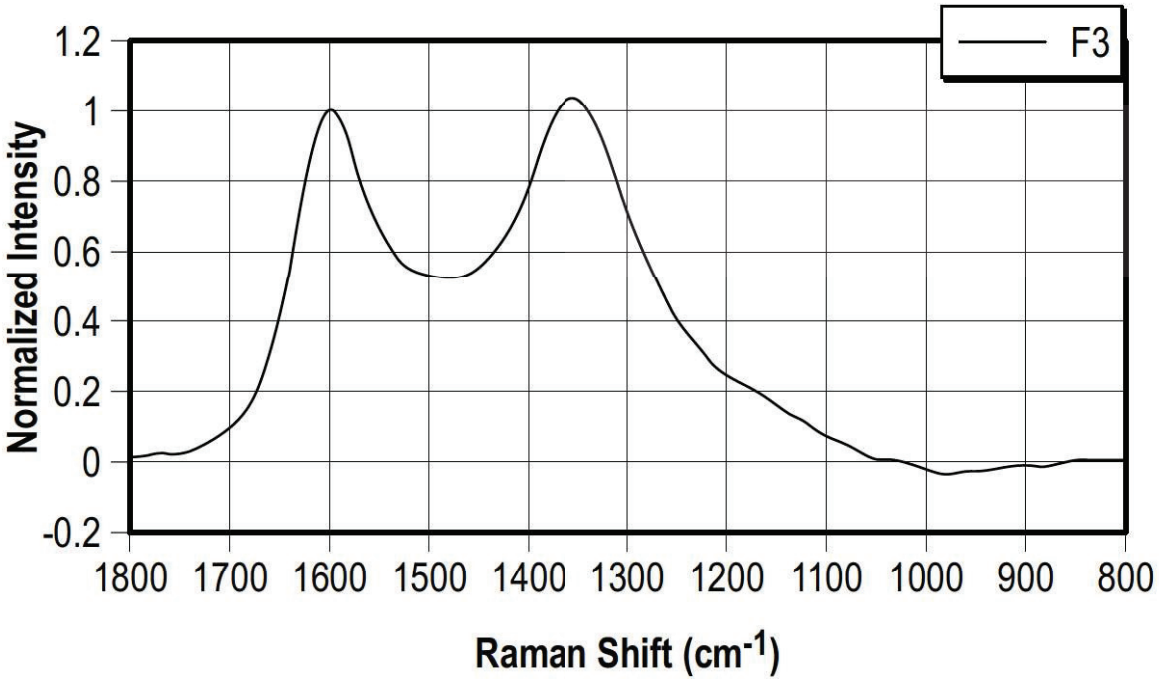

F3
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
Normalized Intensity
1800 1700 1600 1500 1400 1300 1200 1100 1000 900 800
Raman Shift (cm-1)

FIG. 82C

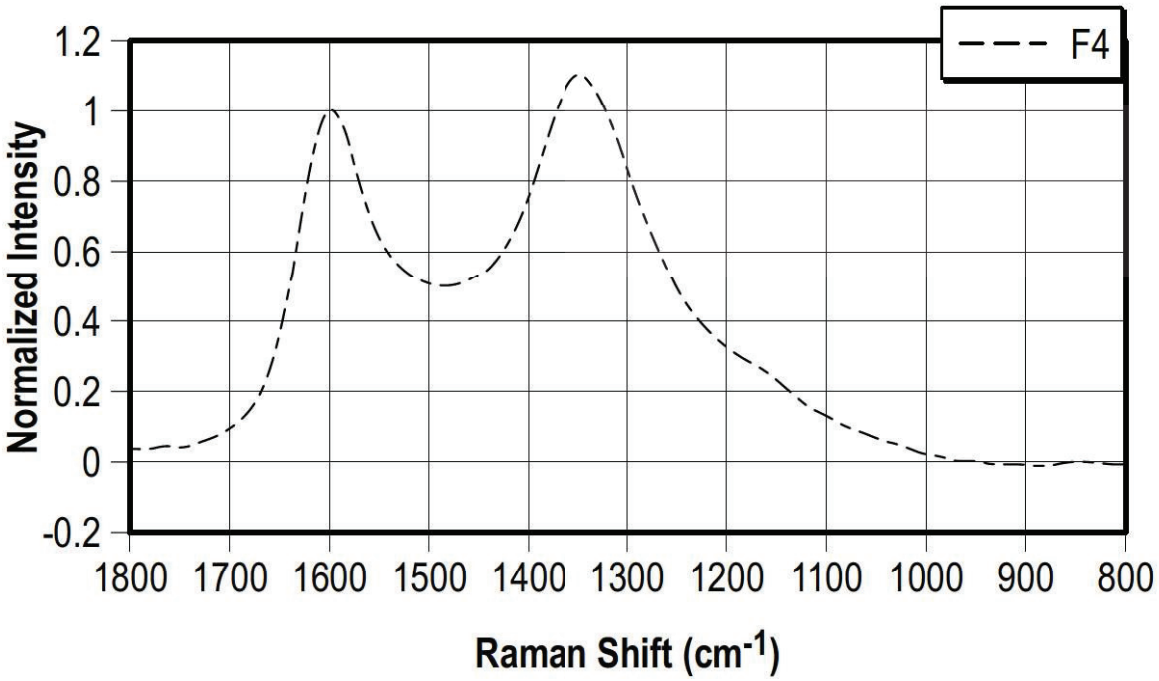

F4
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
Normalized Intensity
1800 1700 1600 1500 1400 1300 1200 1100 1000 900 800
Raman Shift (cm-1)

FIG. 82D

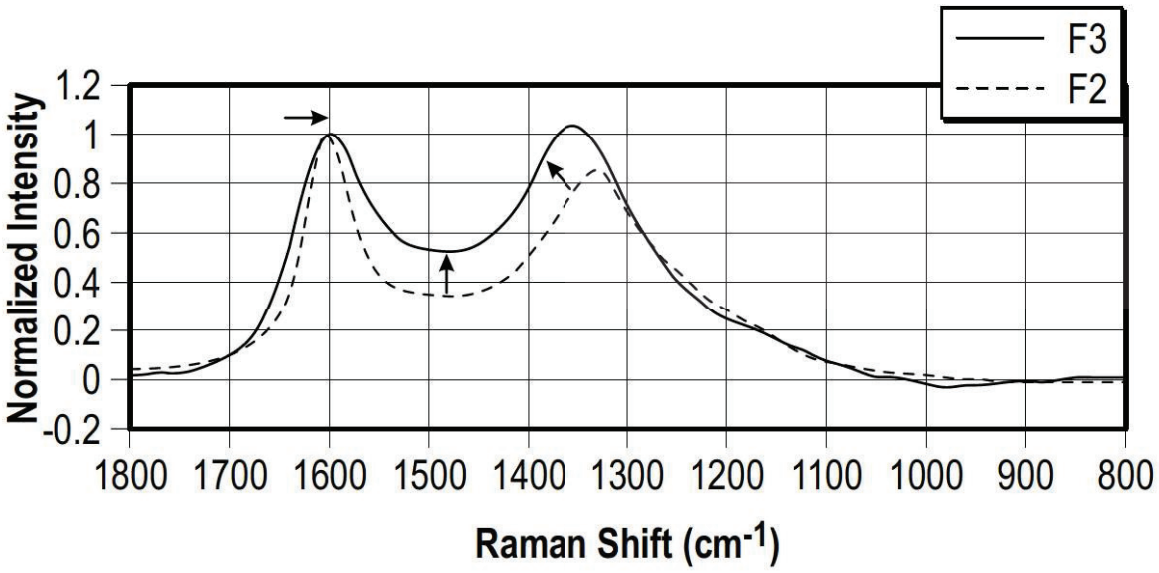

F3
F2
Normalized Intensity
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
1800 1700 1600 1500 1400 1300 1200 1100 1000 900 800
Raman Shift (cm-1)

FIG. 83

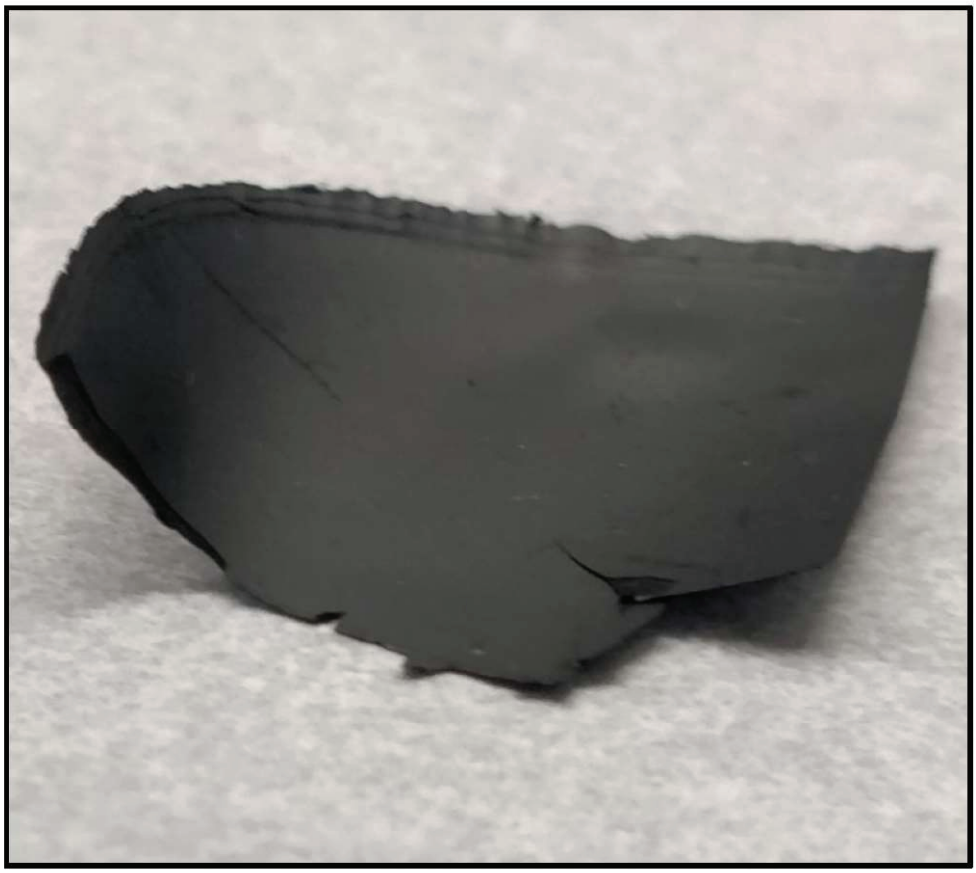


FIG. 84A

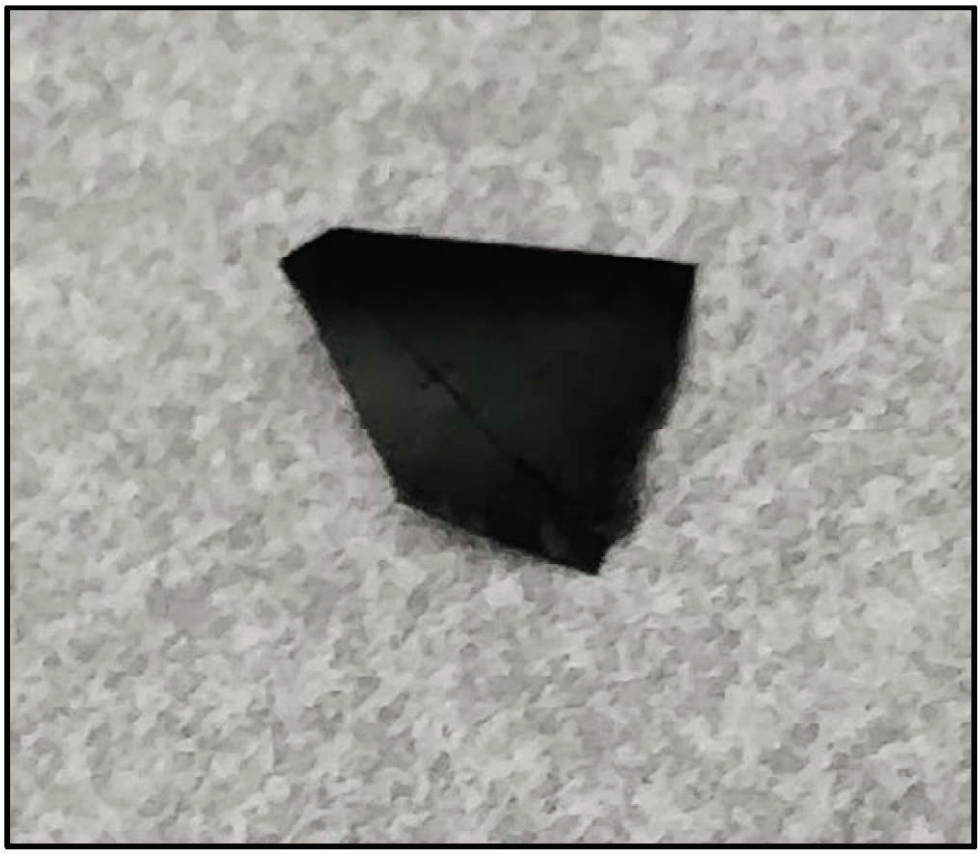


FIG. 84B

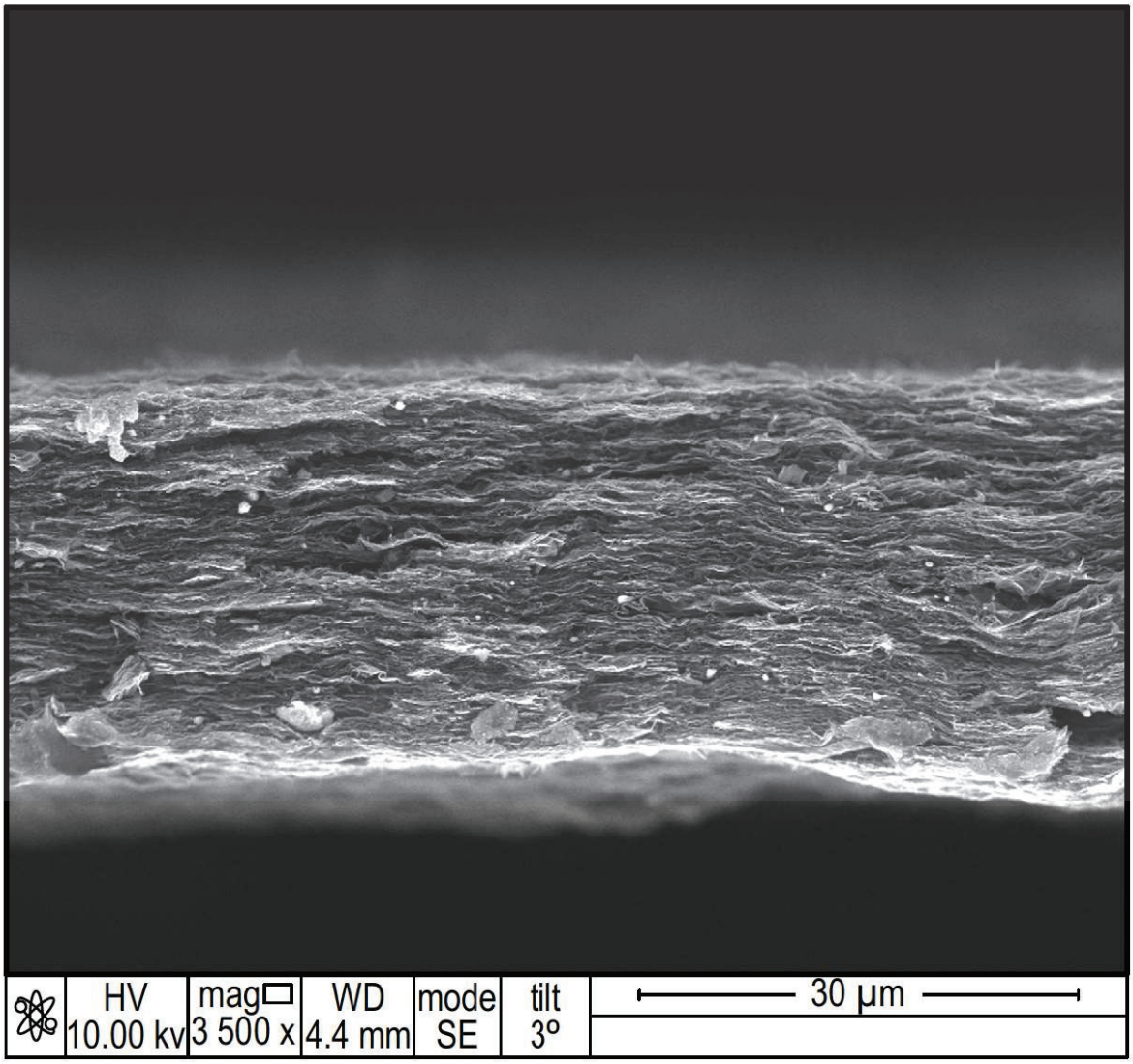


FIG. 85A

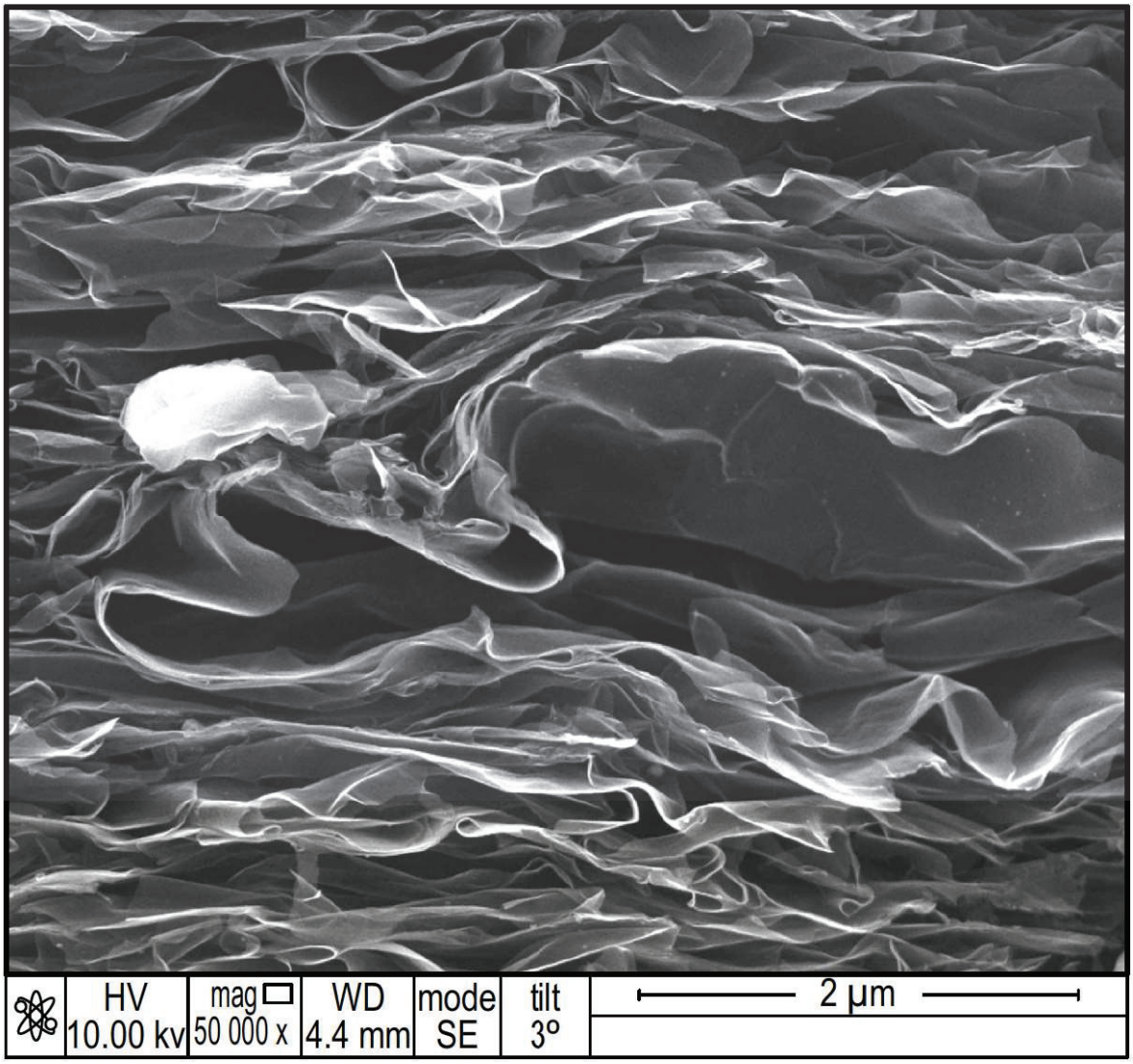


FIG. 85B

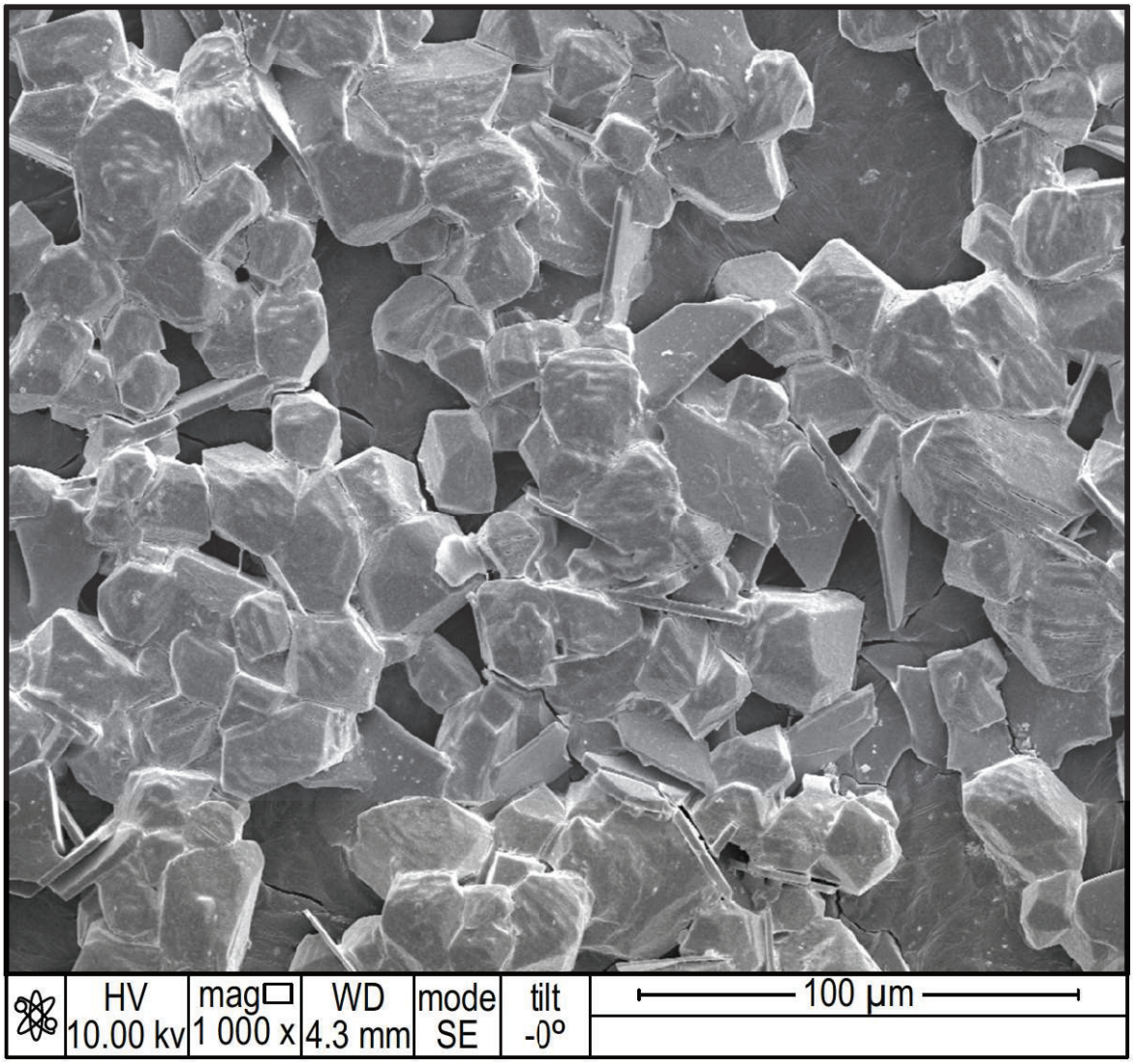


FIG. 85C

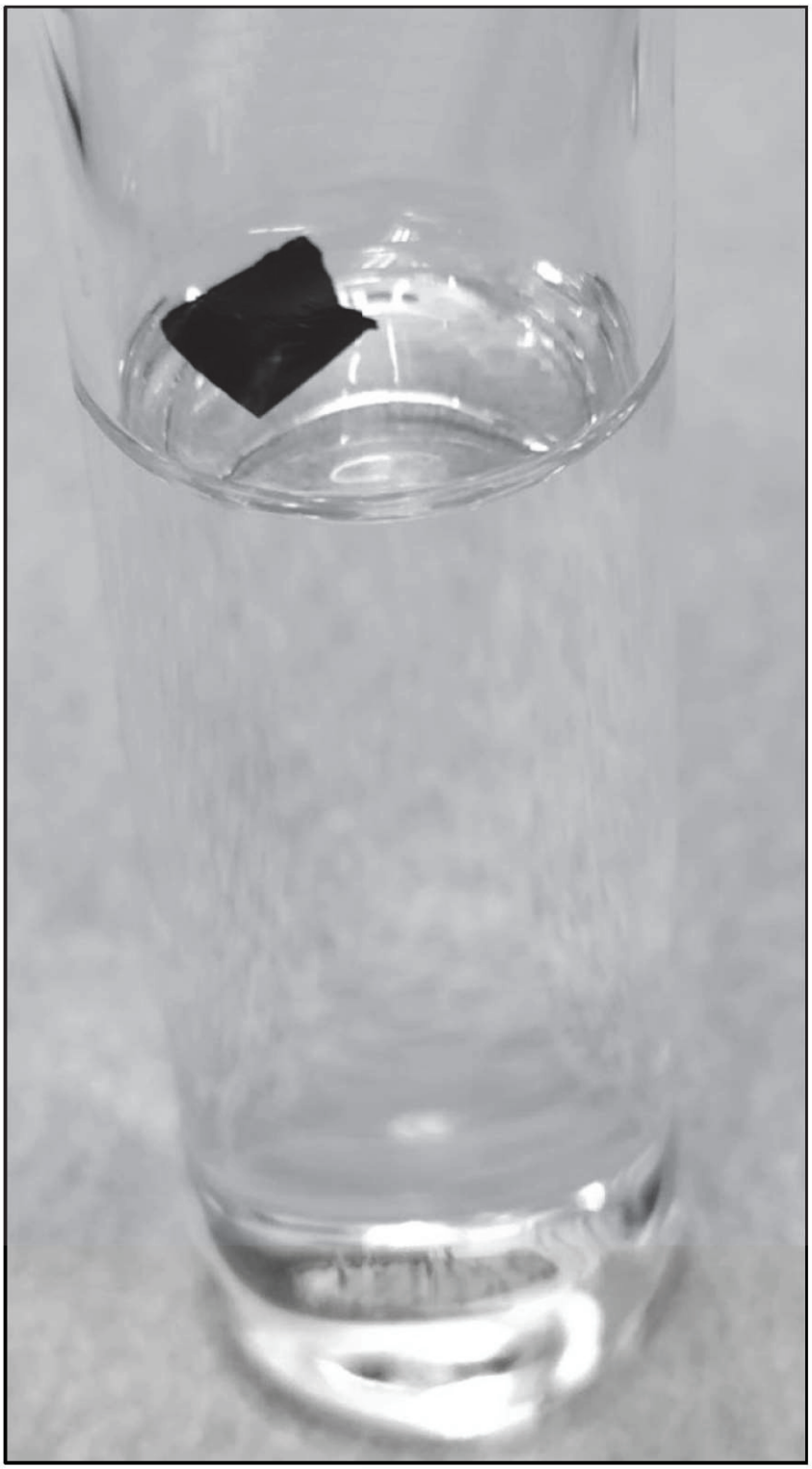


FIG. 86A

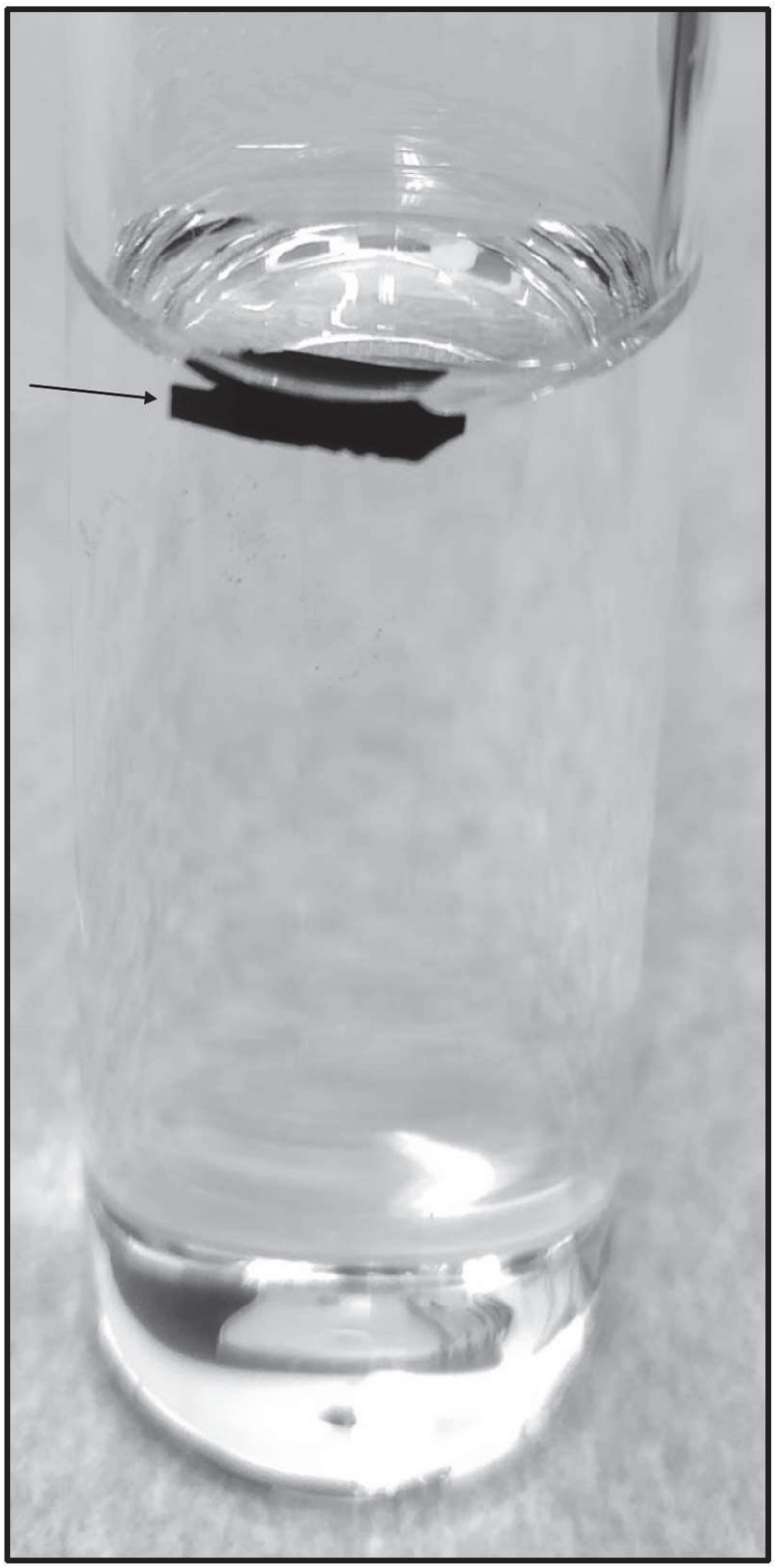


FIG. 86B

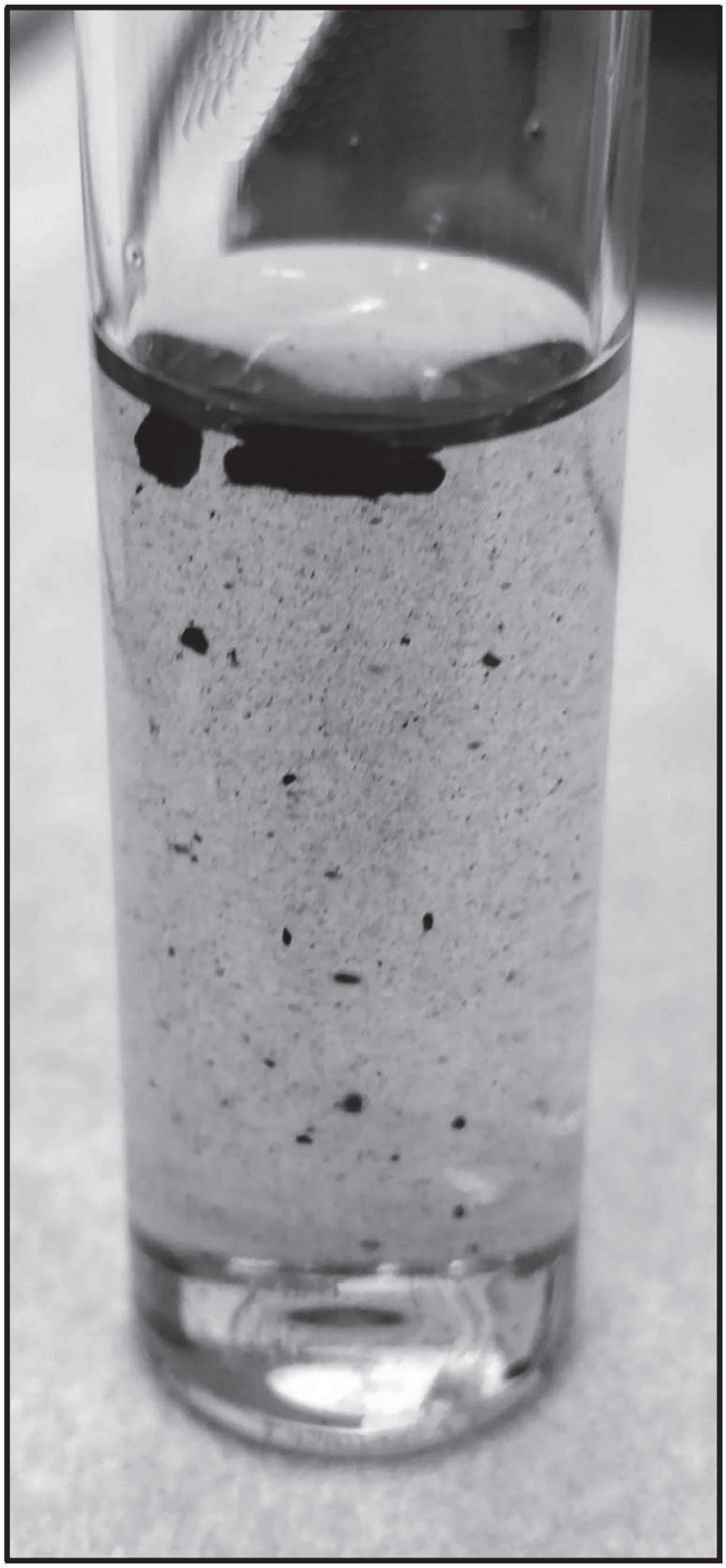


FIG. 86C

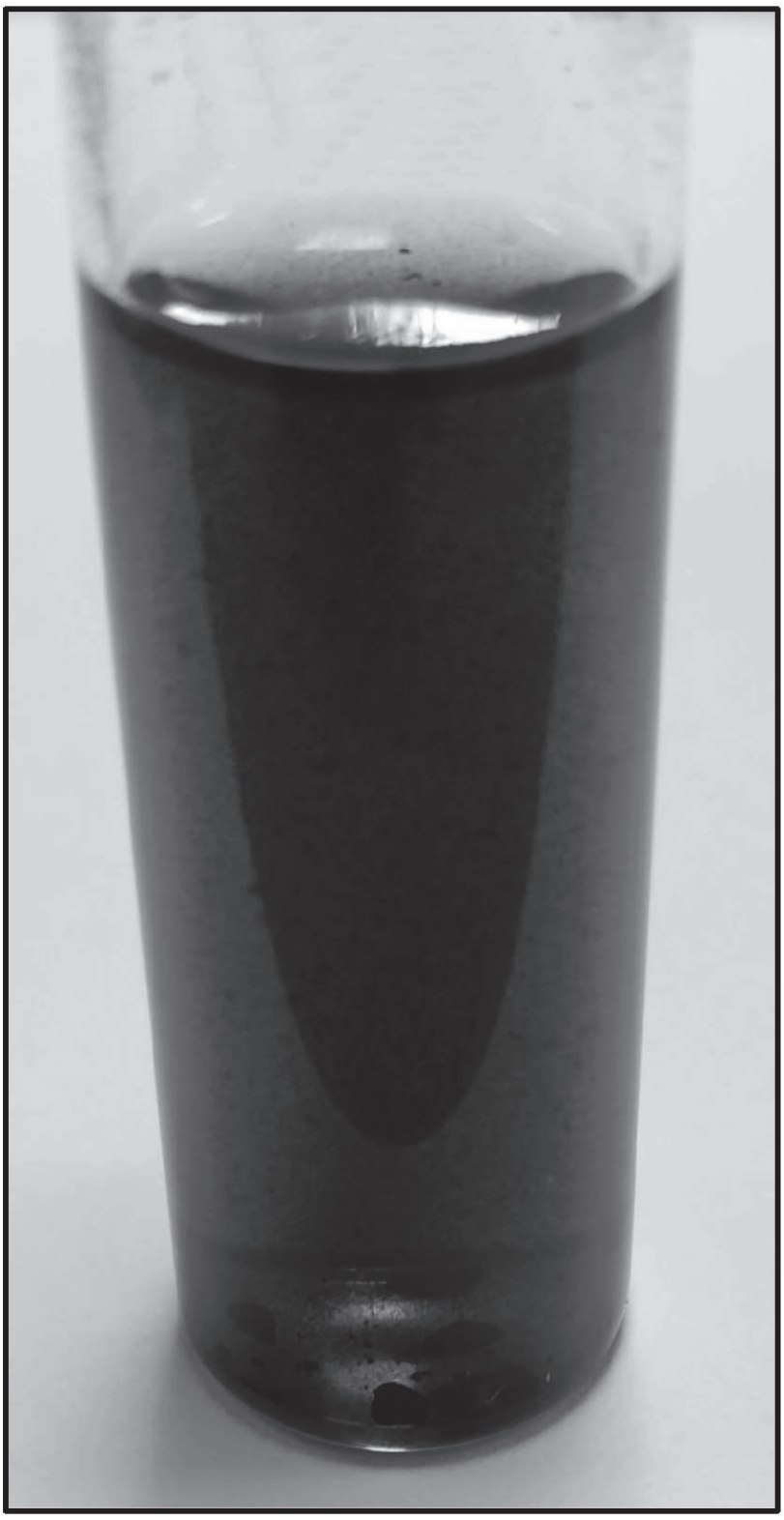


FIG. 86D



FIG. 87A



FIG. 87B



FIG. 87C

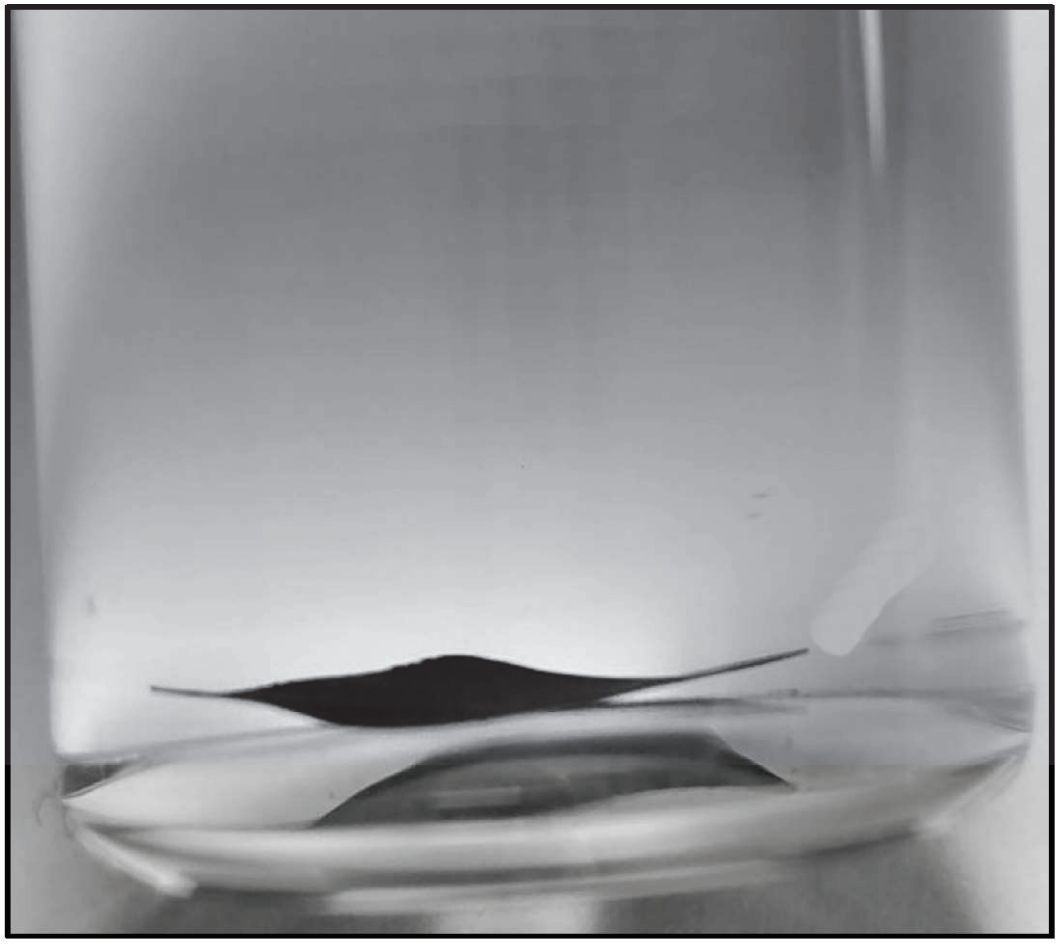


FIG. 87D

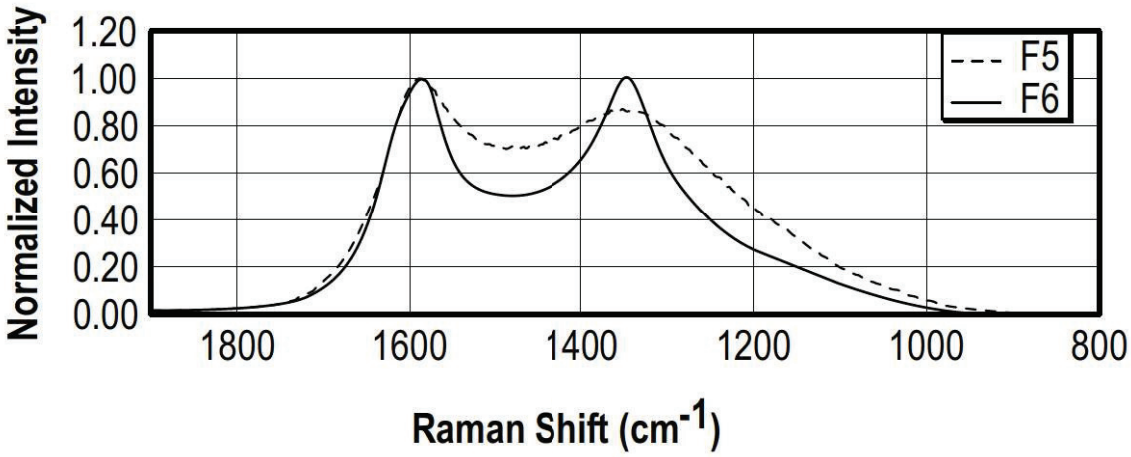

Normalized Intensity
1.20
1.00
0.80
0.60
0.40
0.20
0.00
1800
1600
1400
1200
1000
800
Raman Shift (cm-1)
F5
F6

FIG. 88A

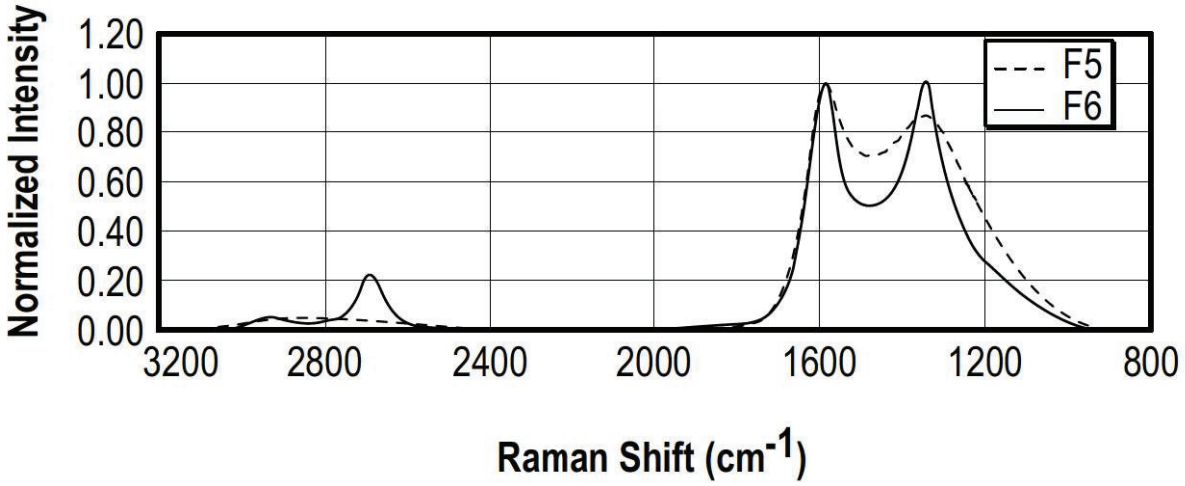

Normalized Intensity
1.20
1.00
0.80
0.60
0.40
0.20
0.00
3200
2800
2400
2000
1600
1200
800
F5
F6
Raman Shift (cm-1)

FIG. 88B

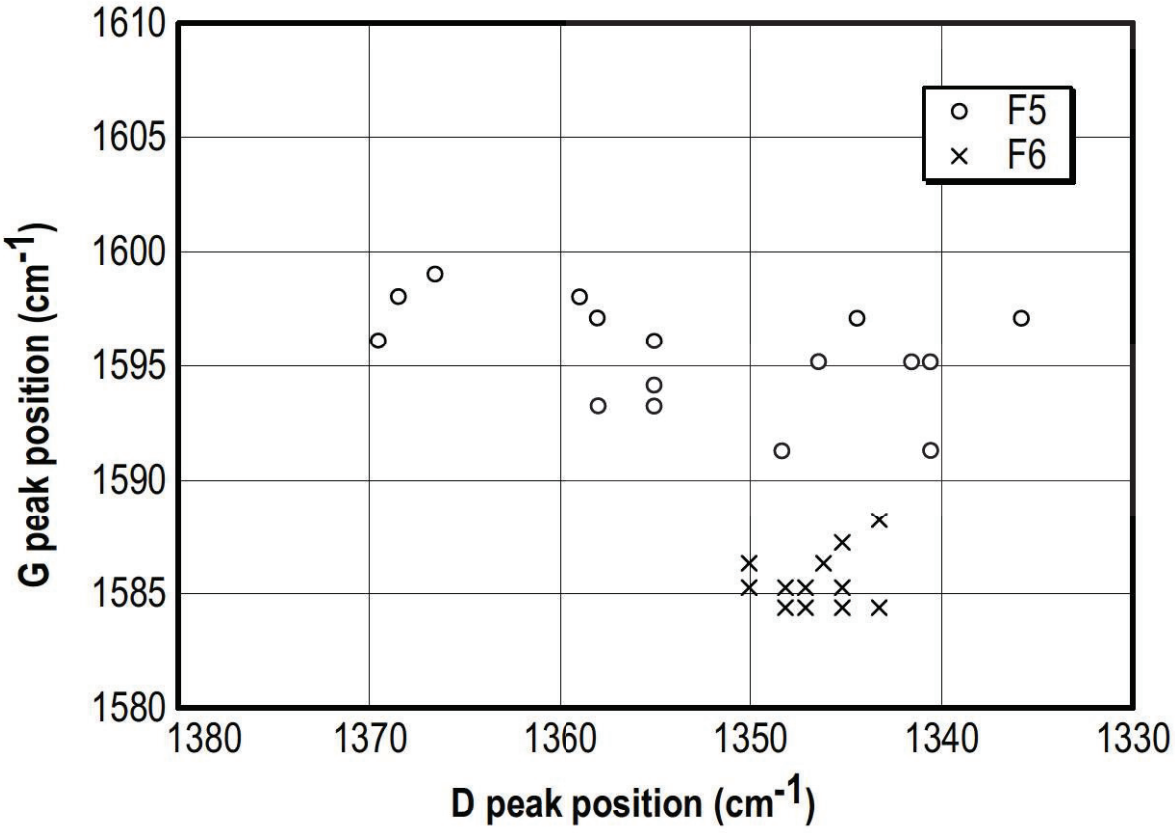

1610
1605
1600
1595
1590
1585
1580
1380
1370
1360
1350
1340
1330
G peak position (cm-1)
D peak position (cm-1)
F5
F6

FIG. 88C

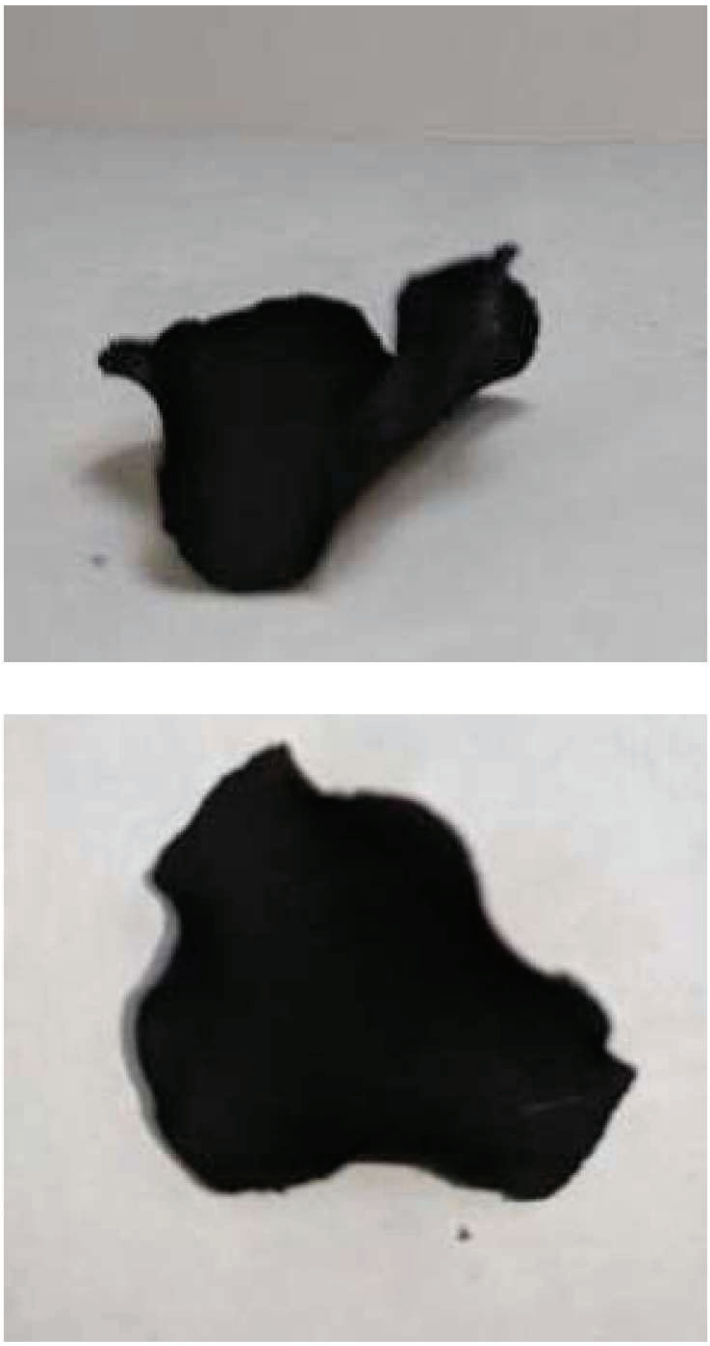


Fig. 89

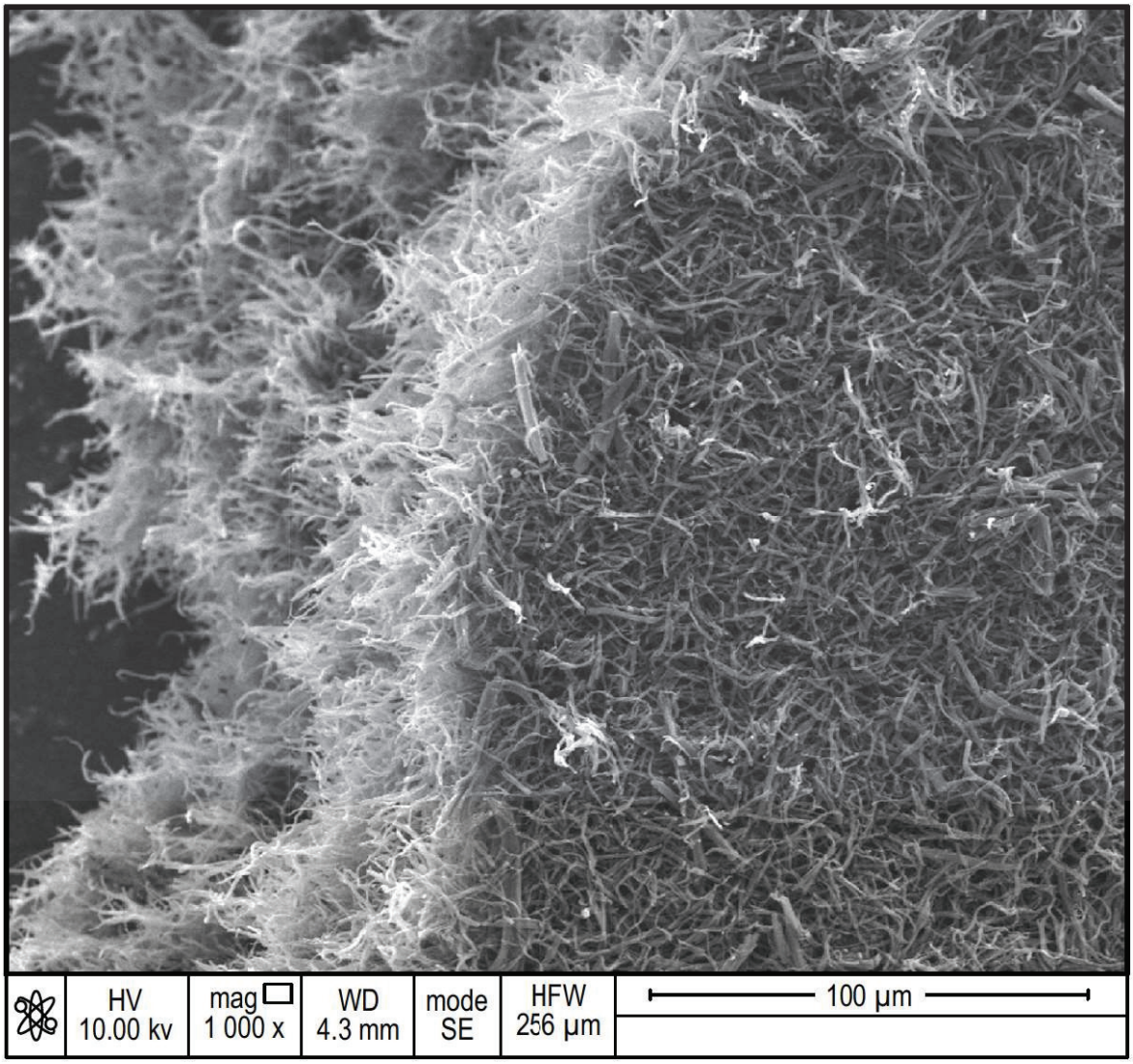


FIG. 90A

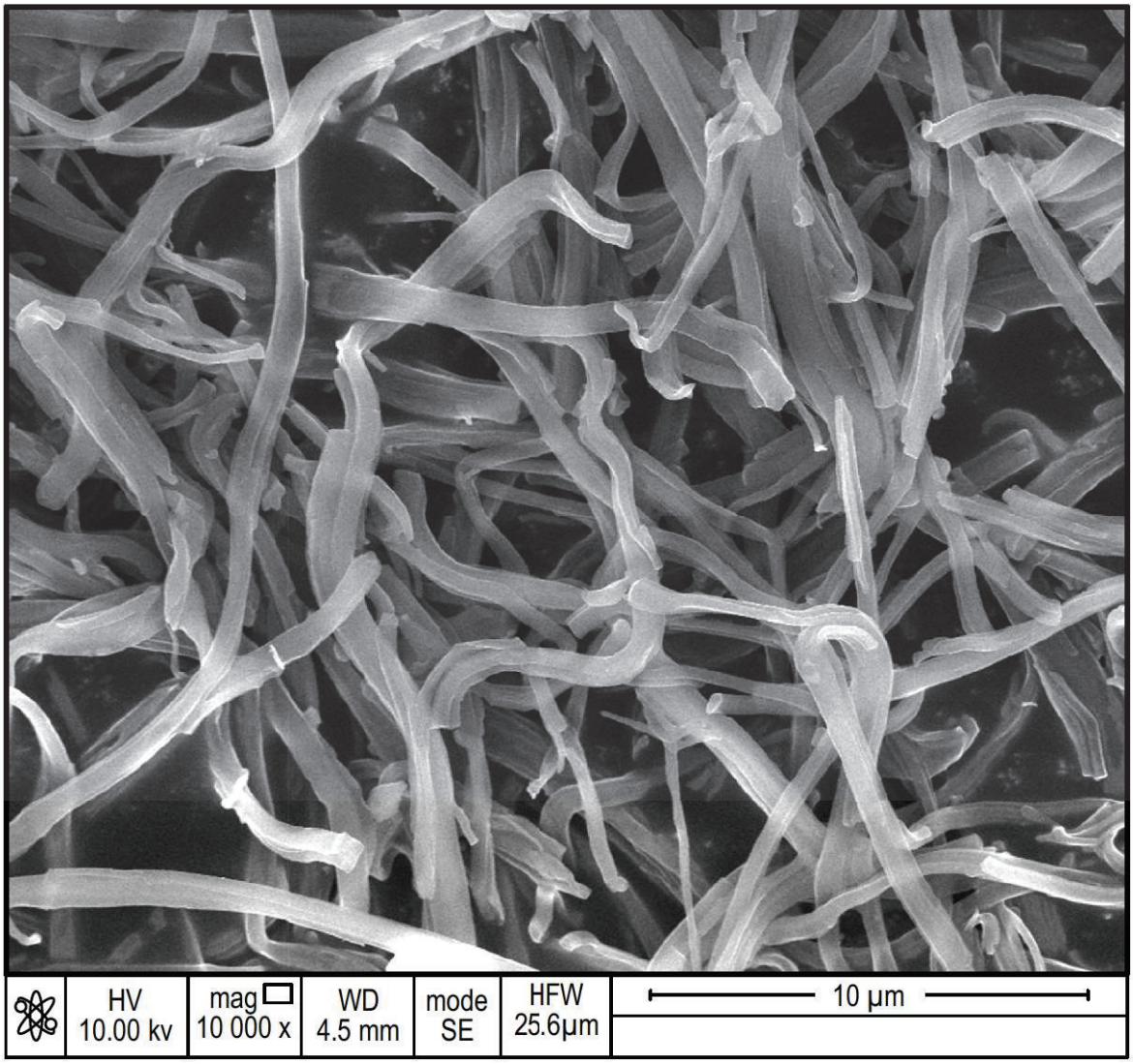


FIG. 90B

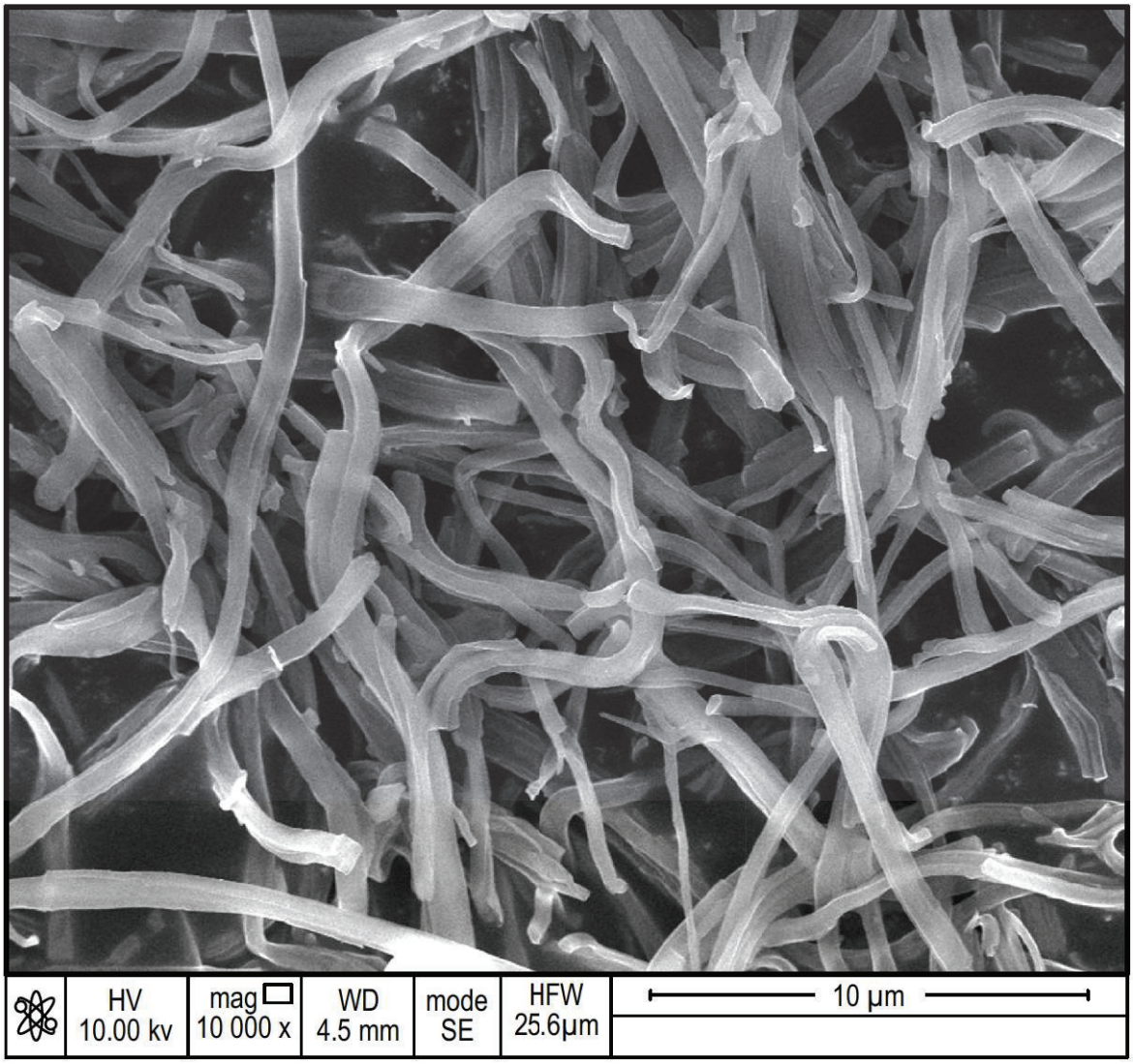


FIG. 91A

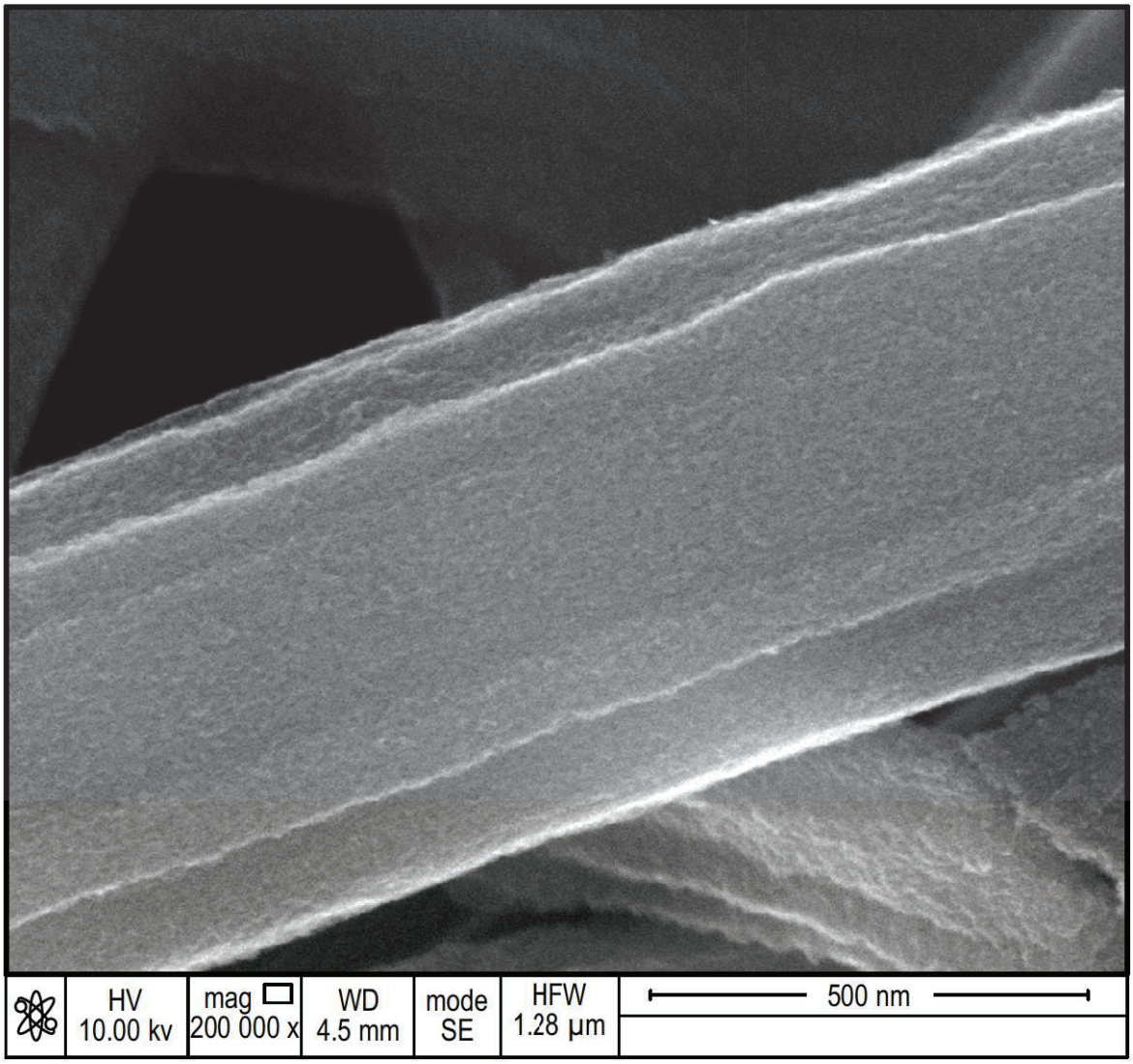


FIG. 91B

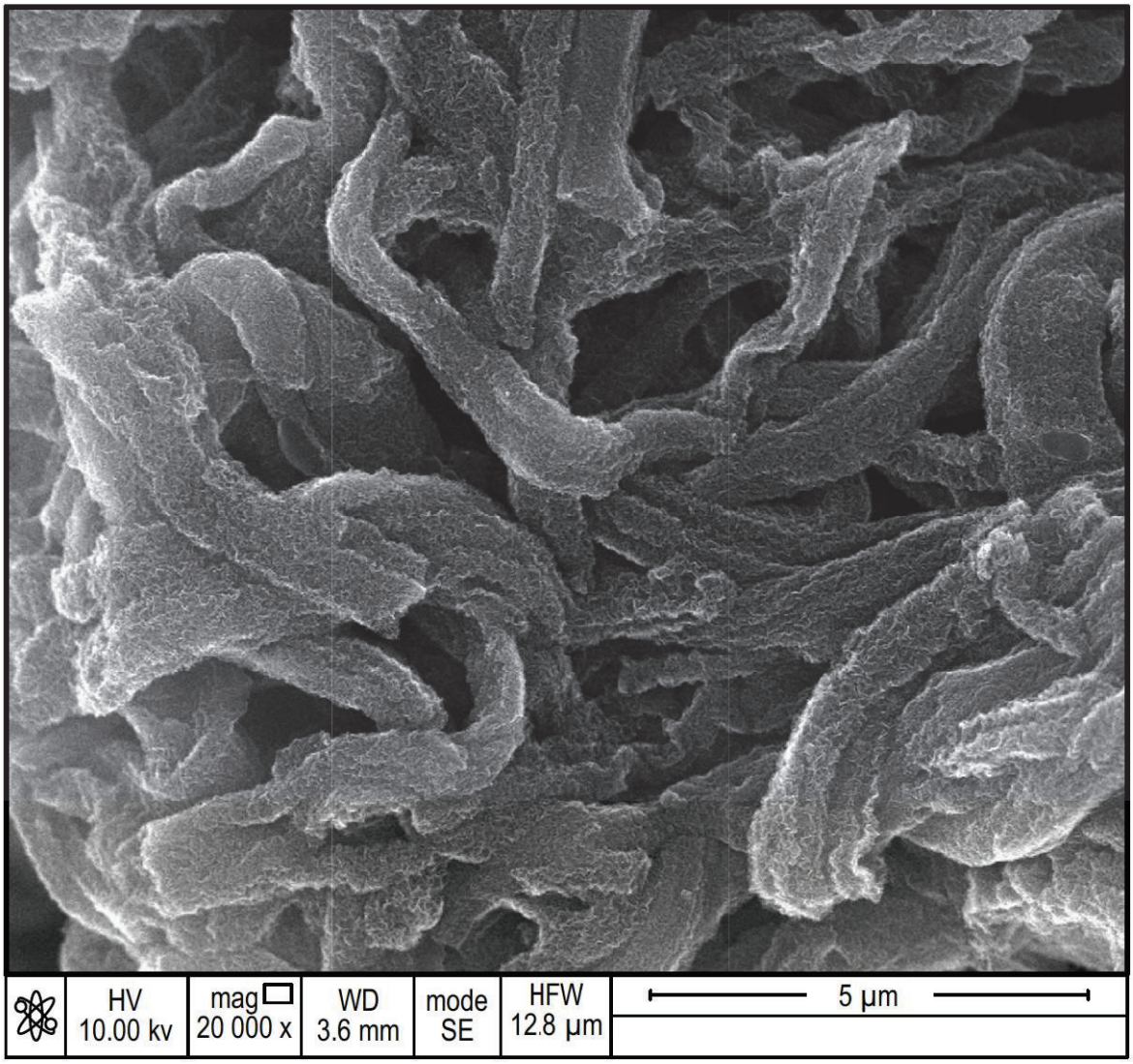


FIG. 92A

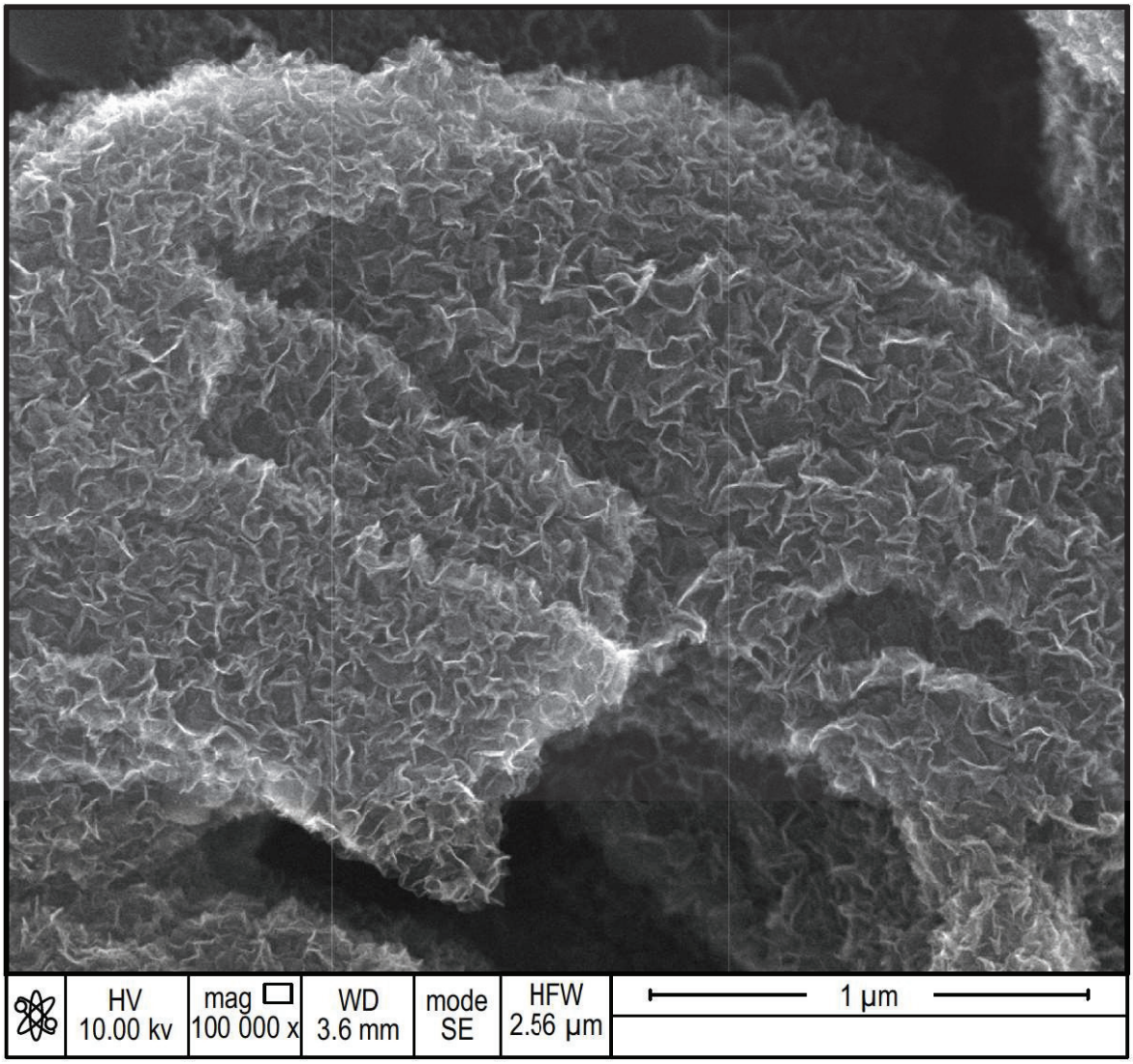


FIG. 92B

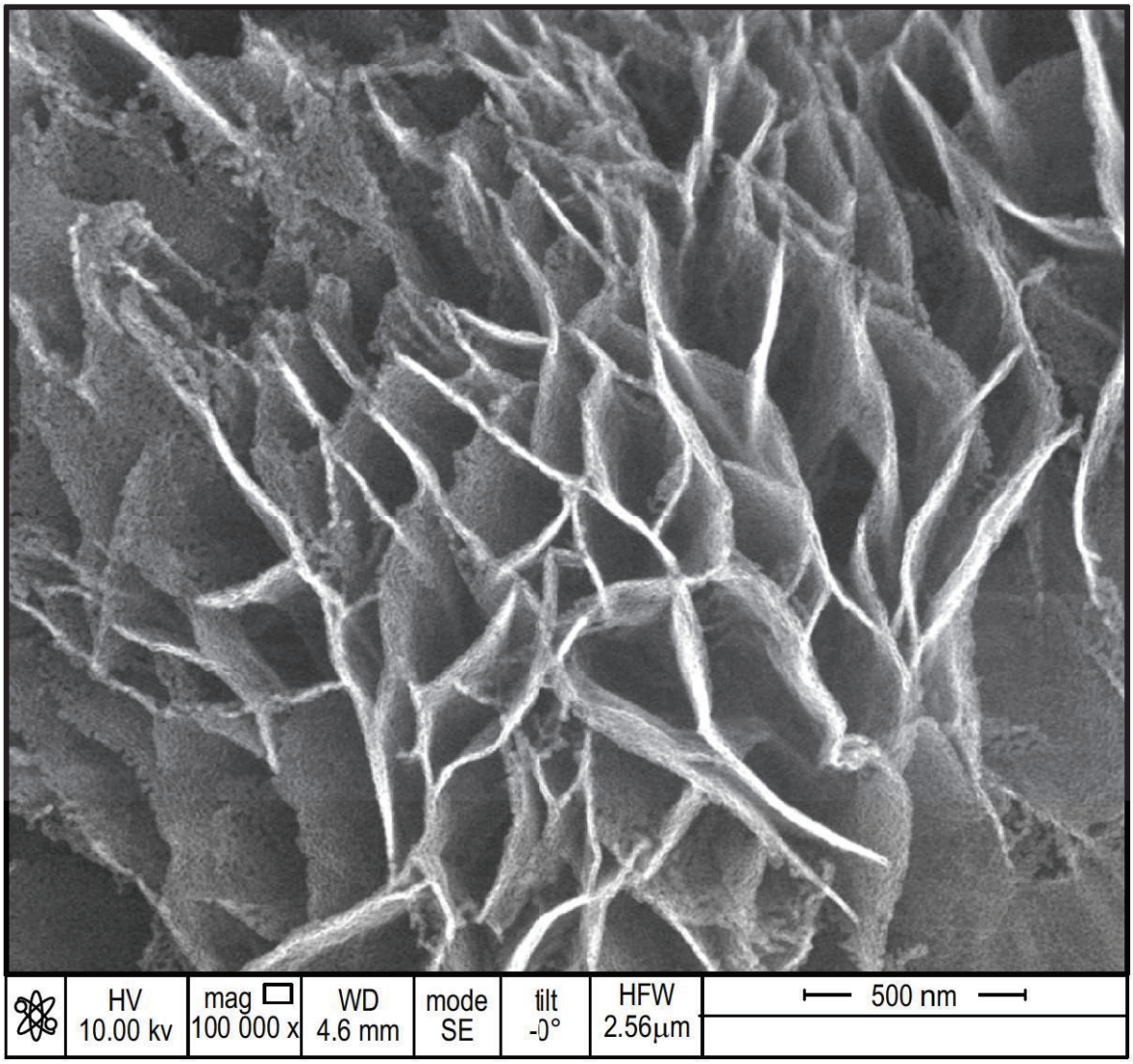


FIG. 93

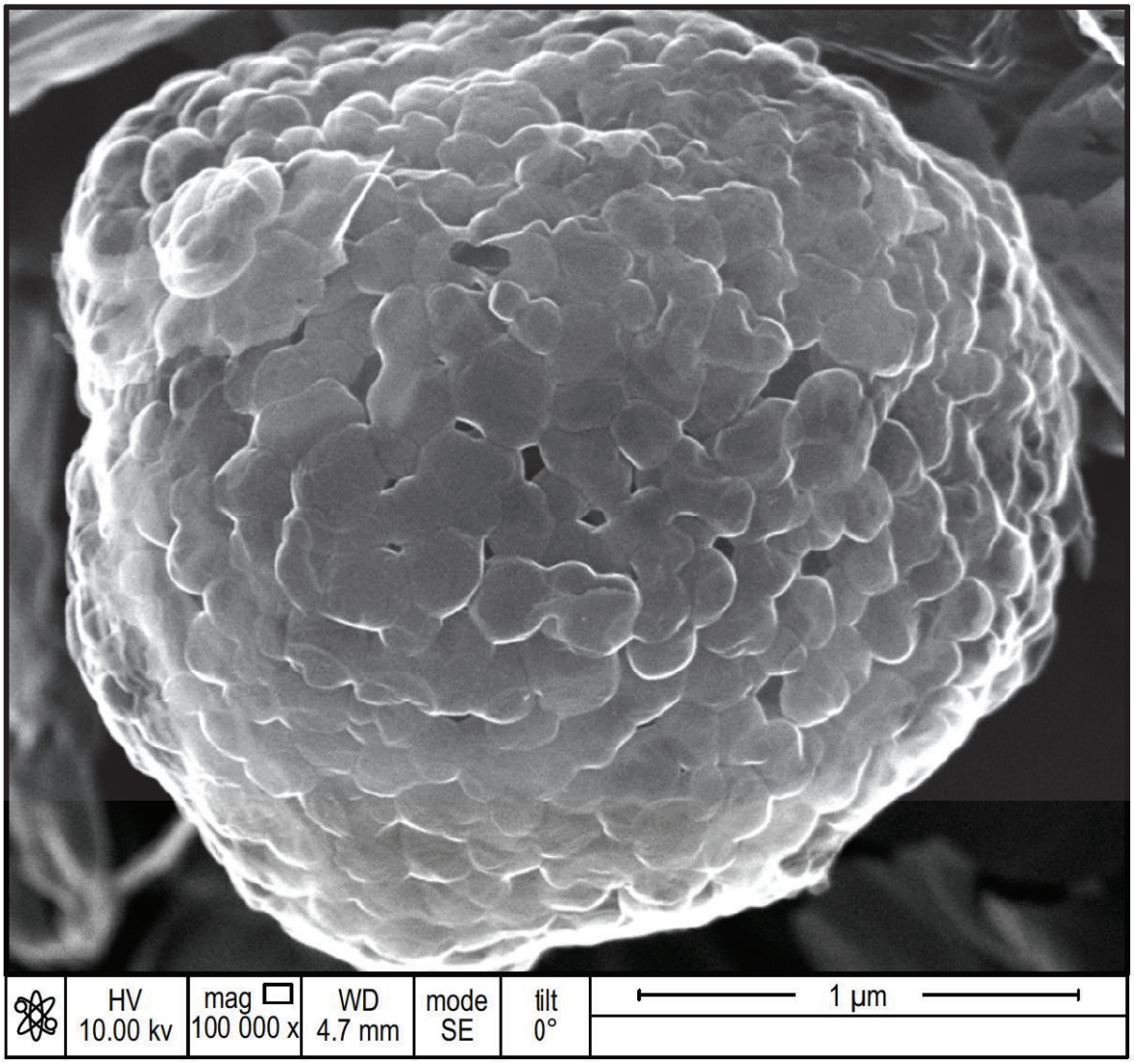


FIG. 94A

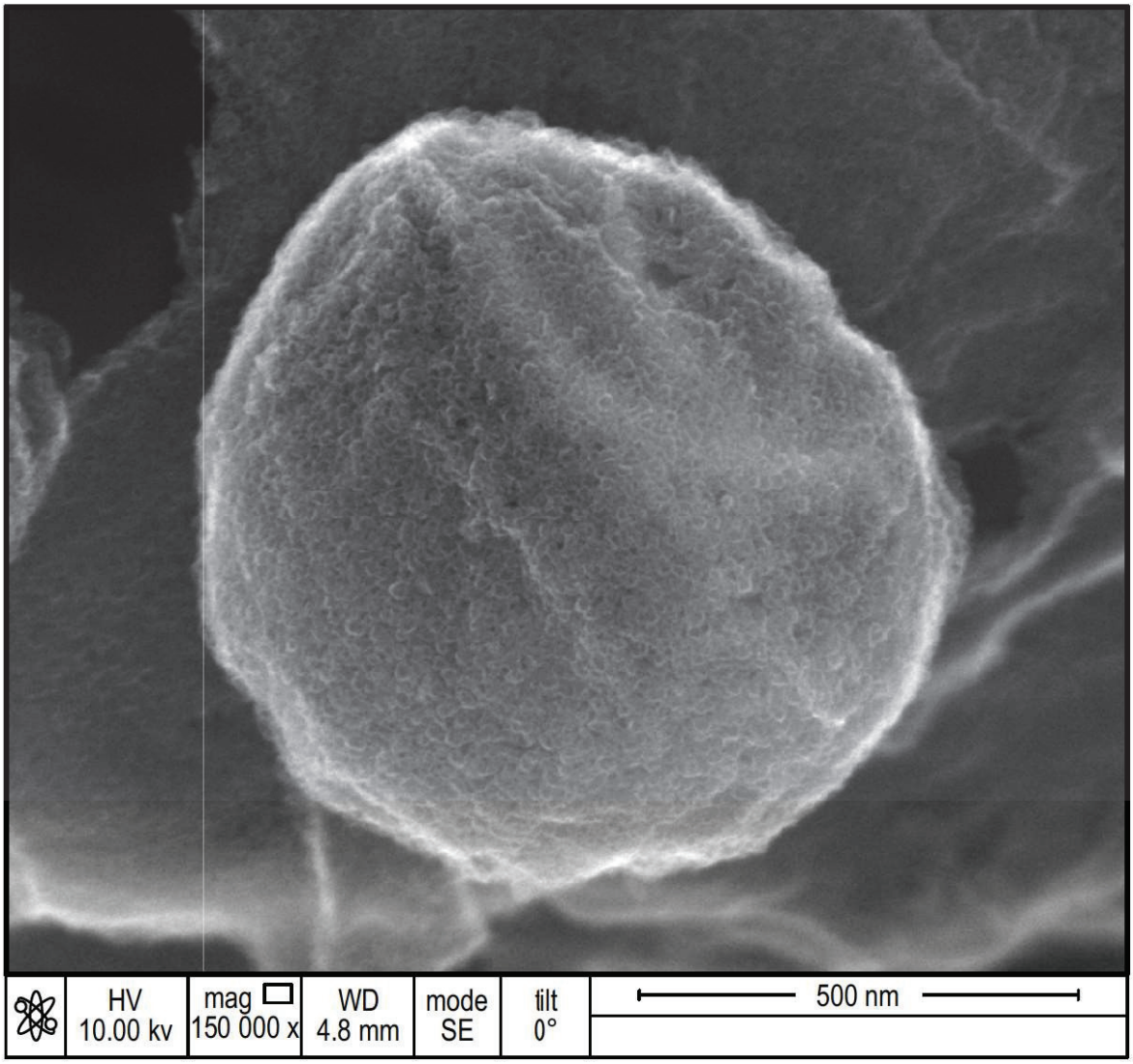


FIG. 94B

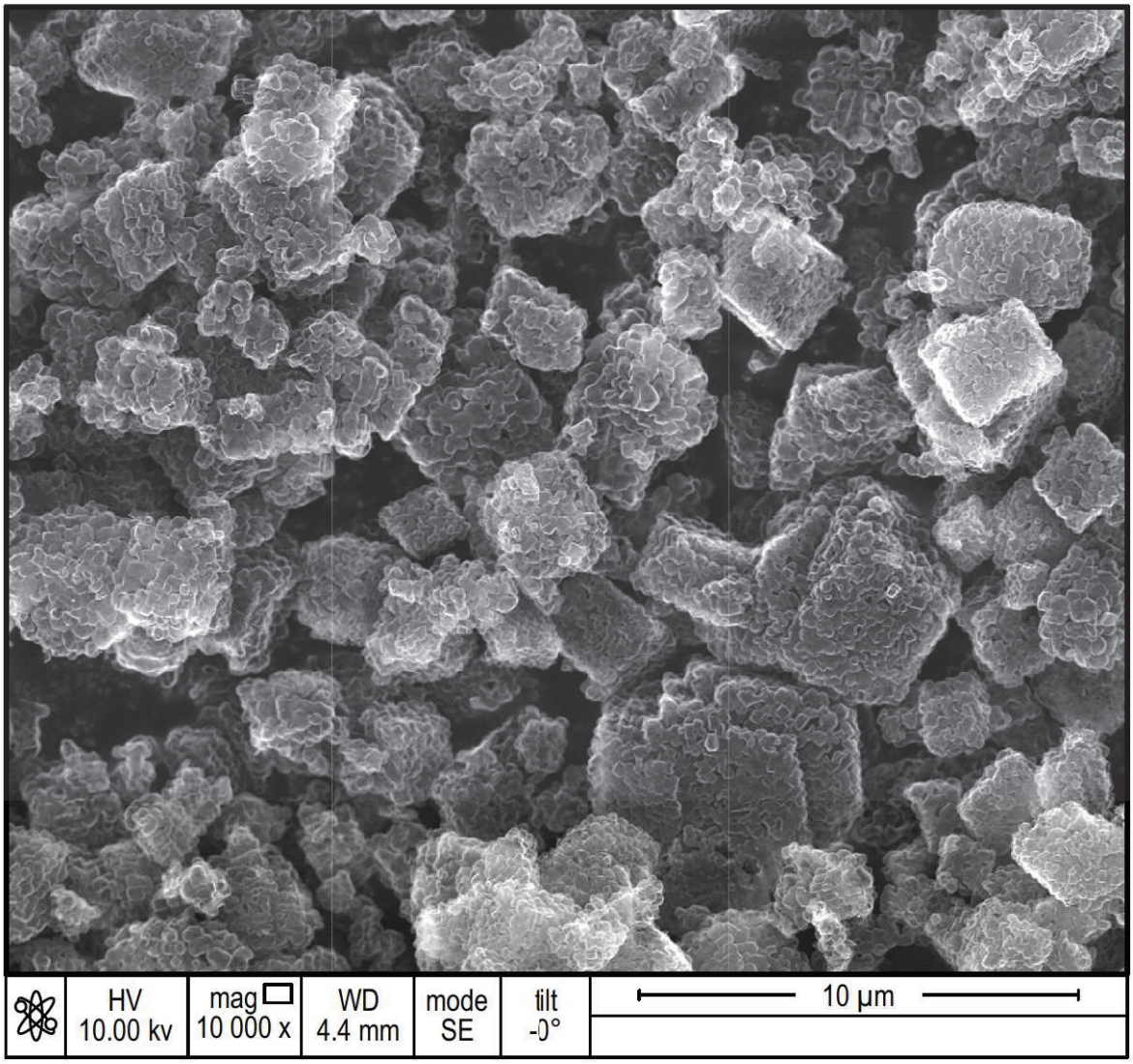


FIG. 95A

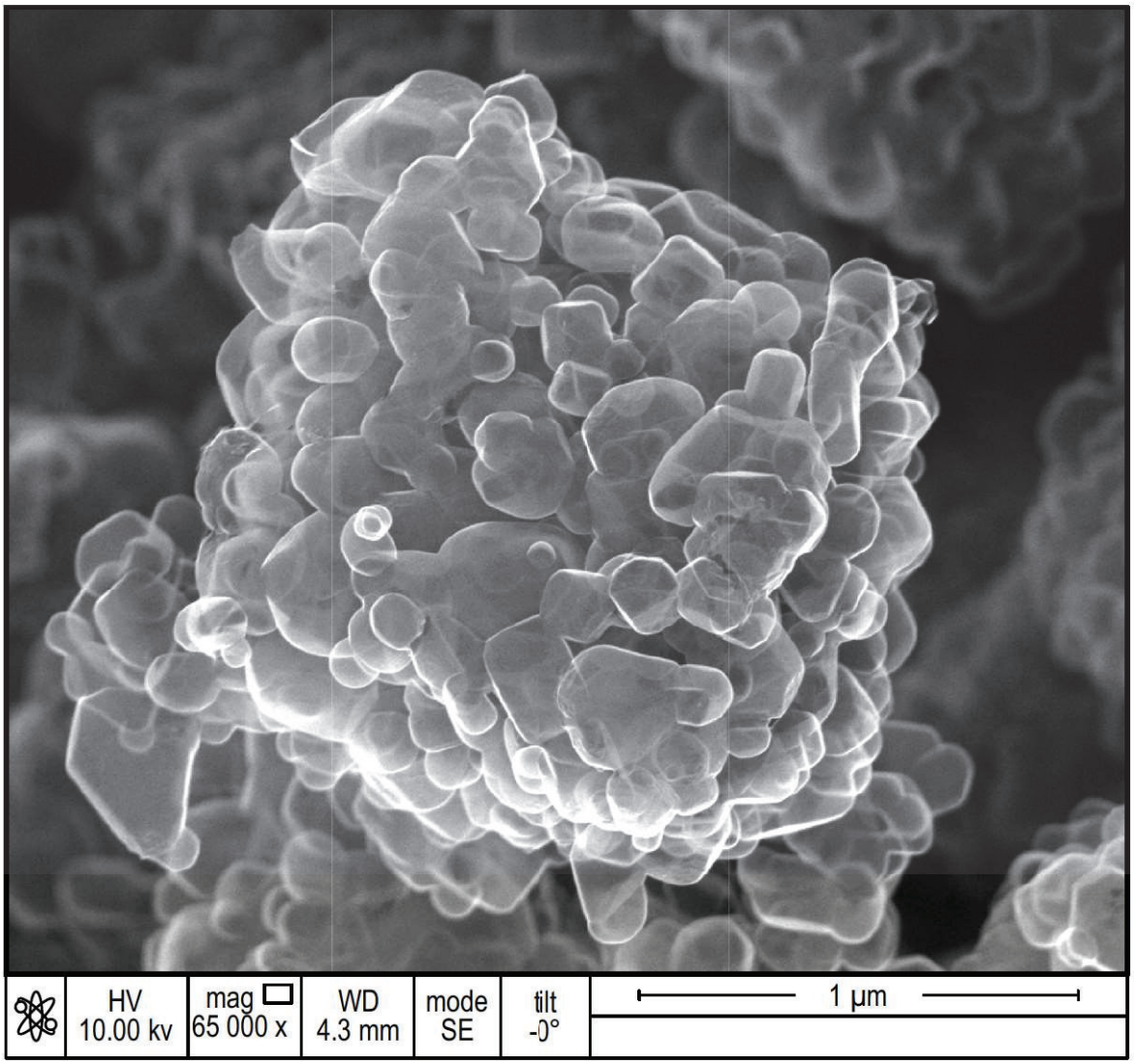
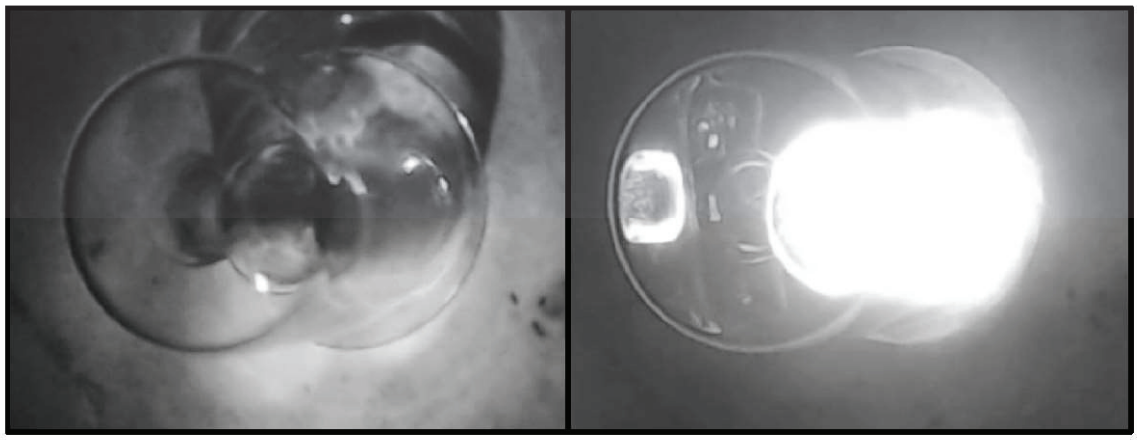


FIG. 95B



Before microwave irradiation During microwave irradiation

FIG. 96

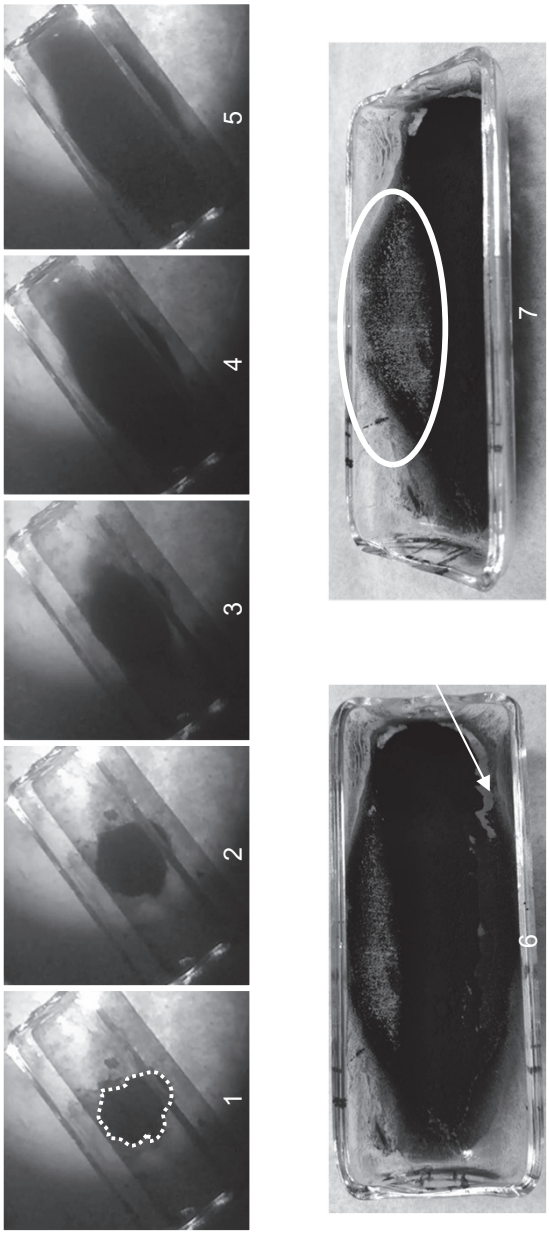


FIG. 97

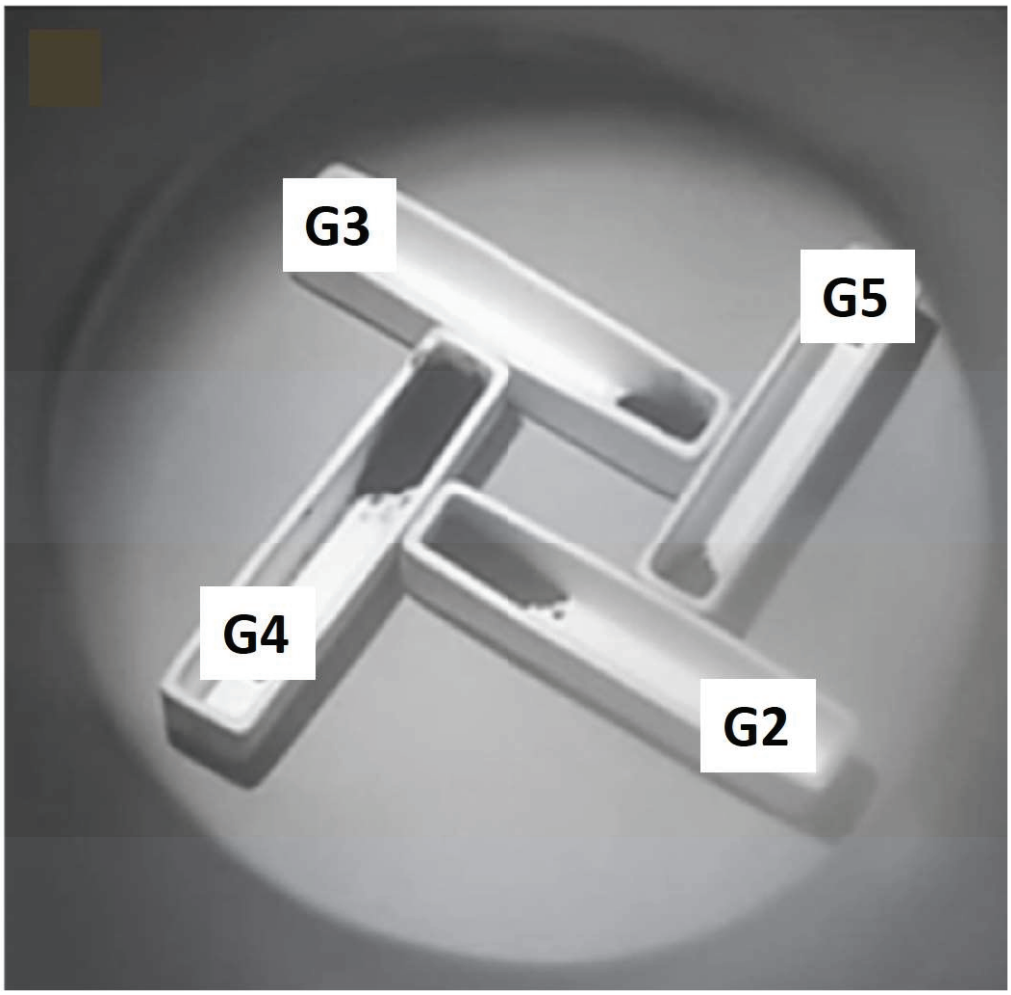


Fig. 98A

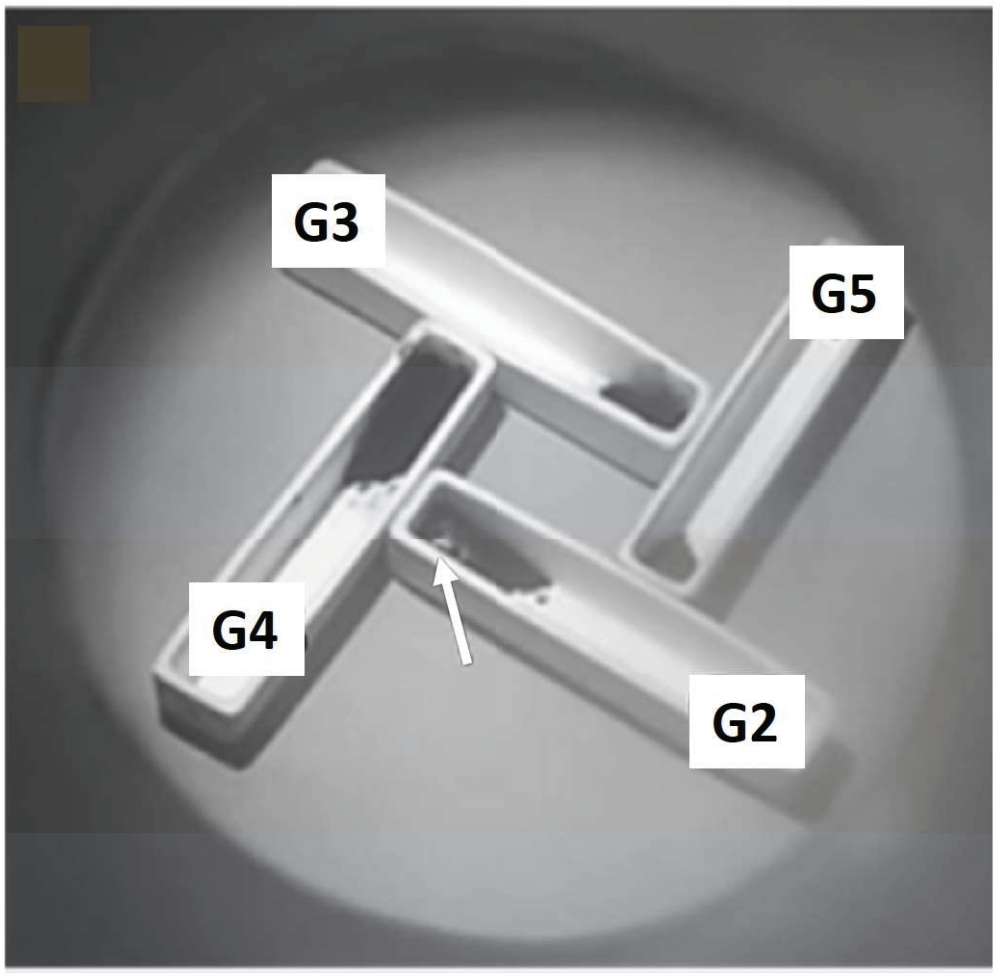


Fig. 98B

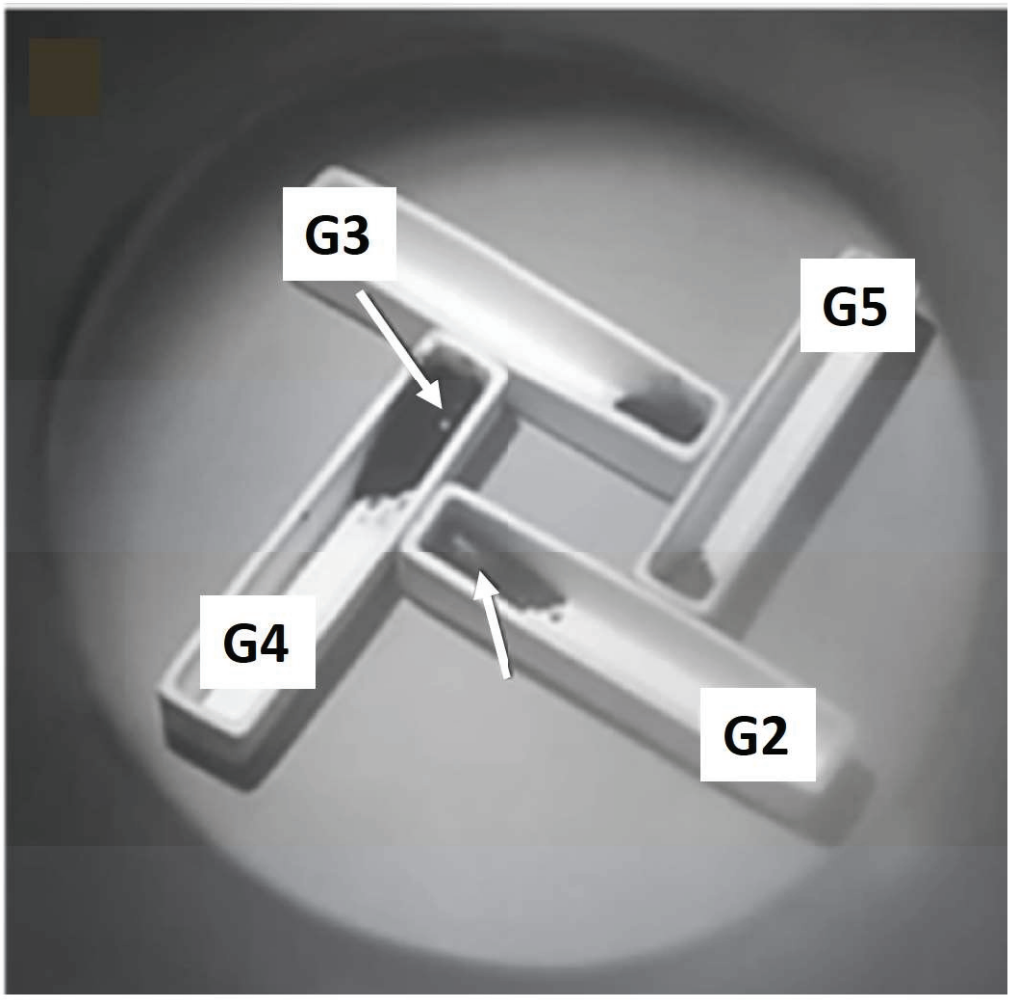


Fig. 98C

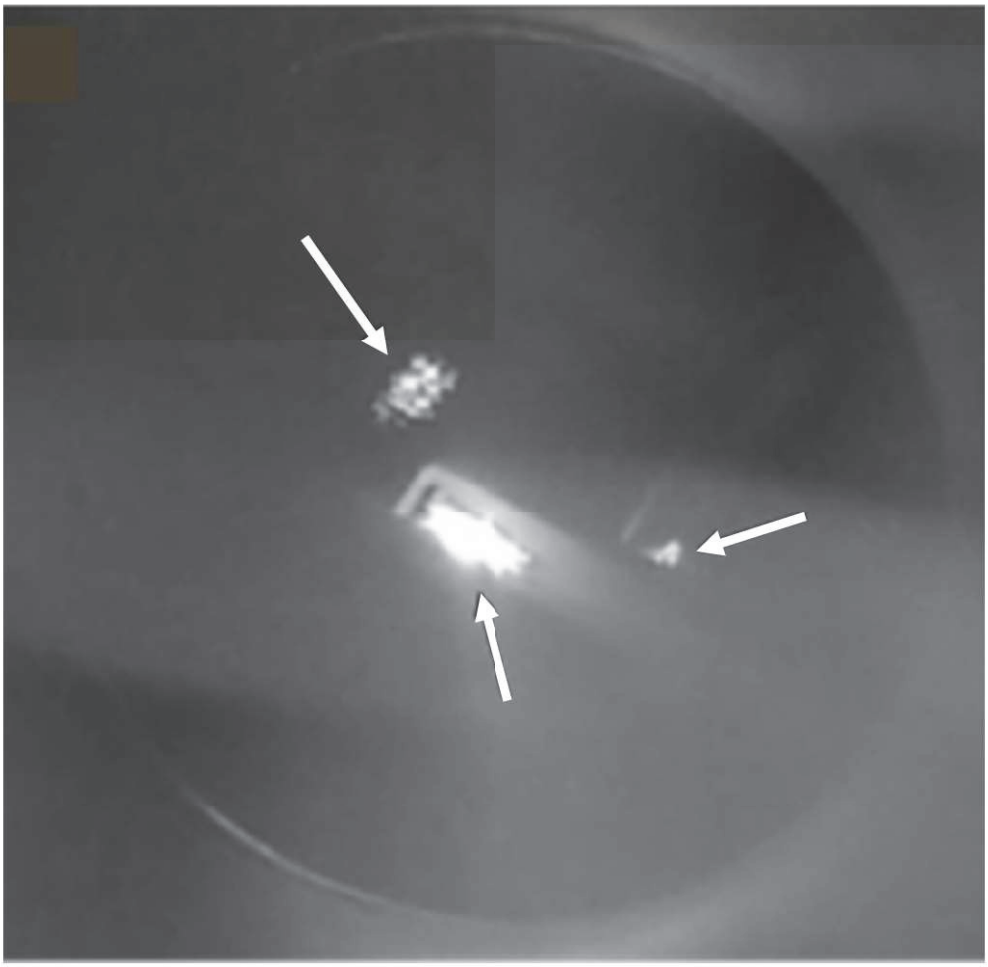


Fig. 98D

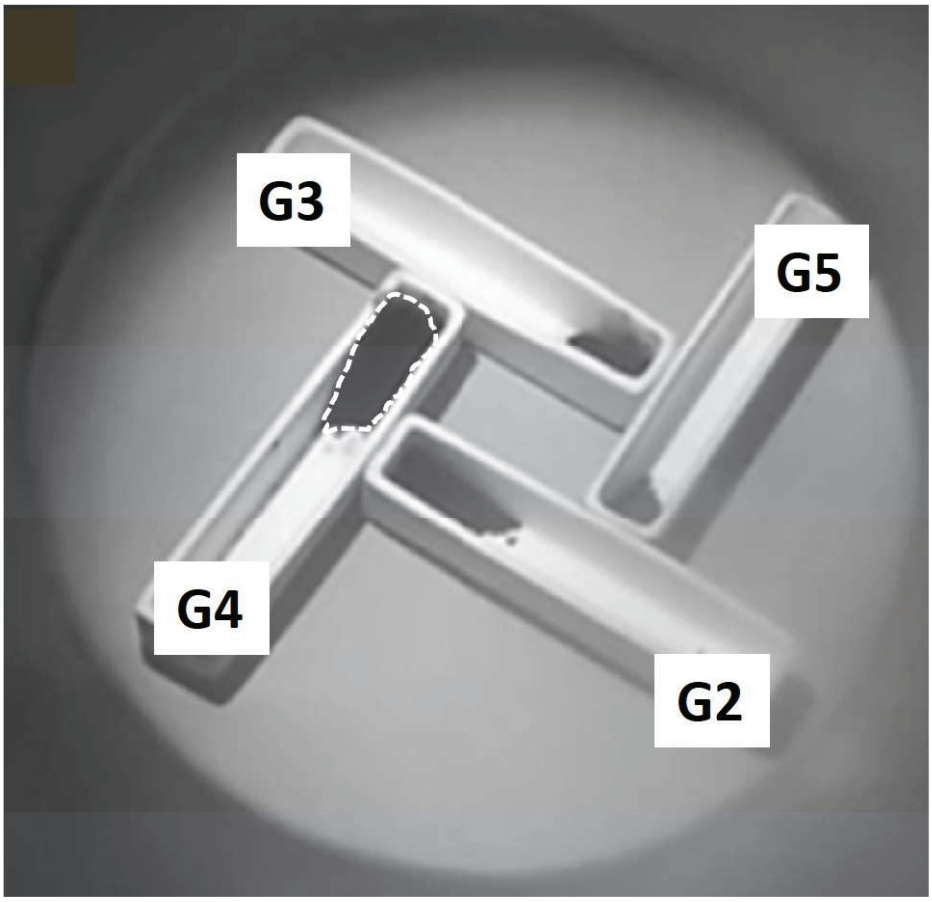


Fig. 99A

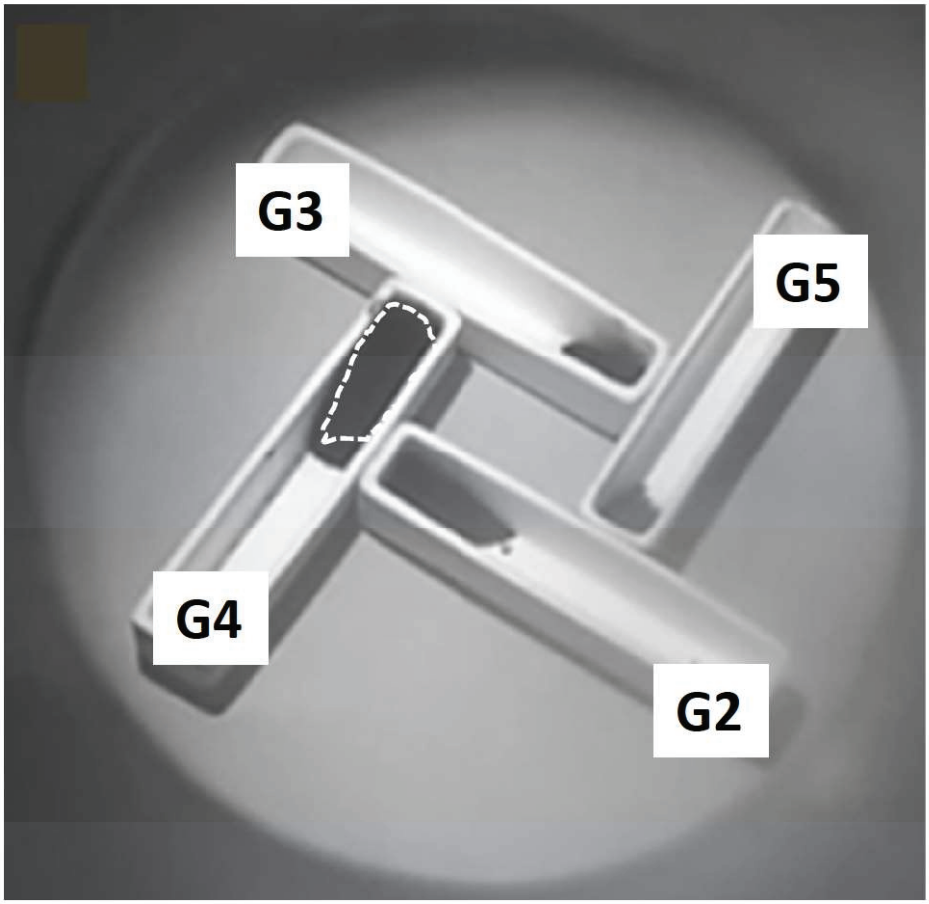


Fig. 99B

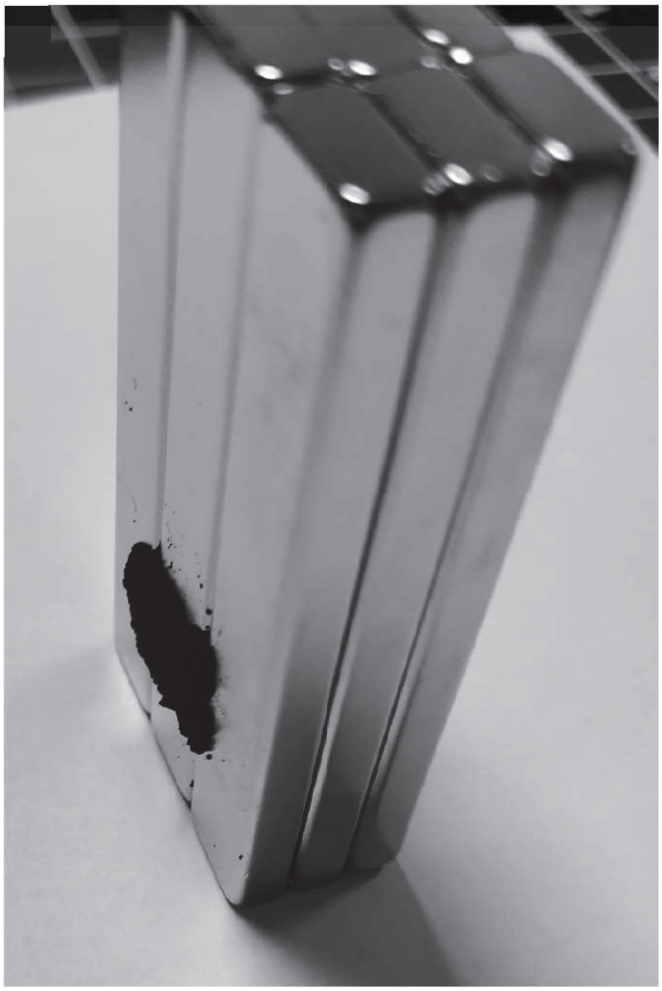


Fig. 100A

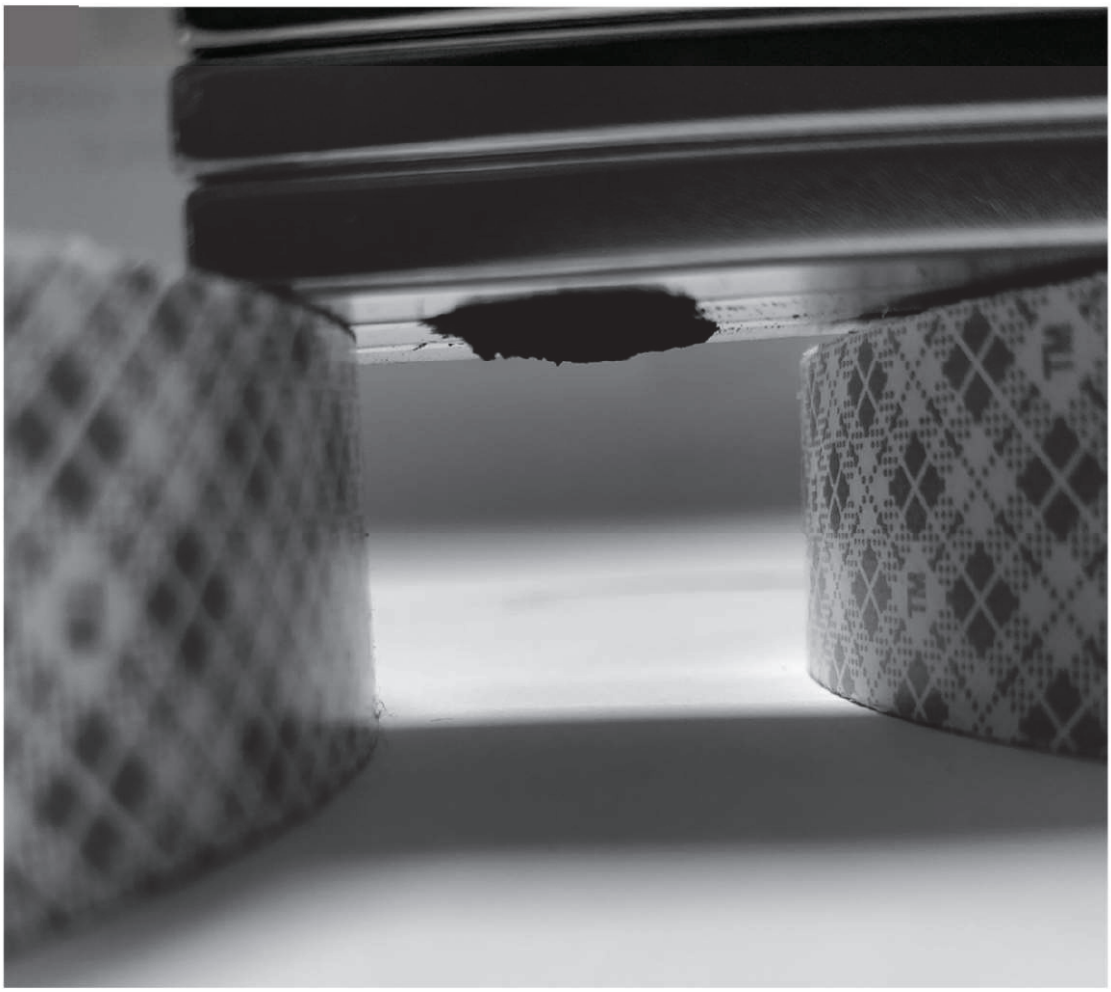


Fig. 100B

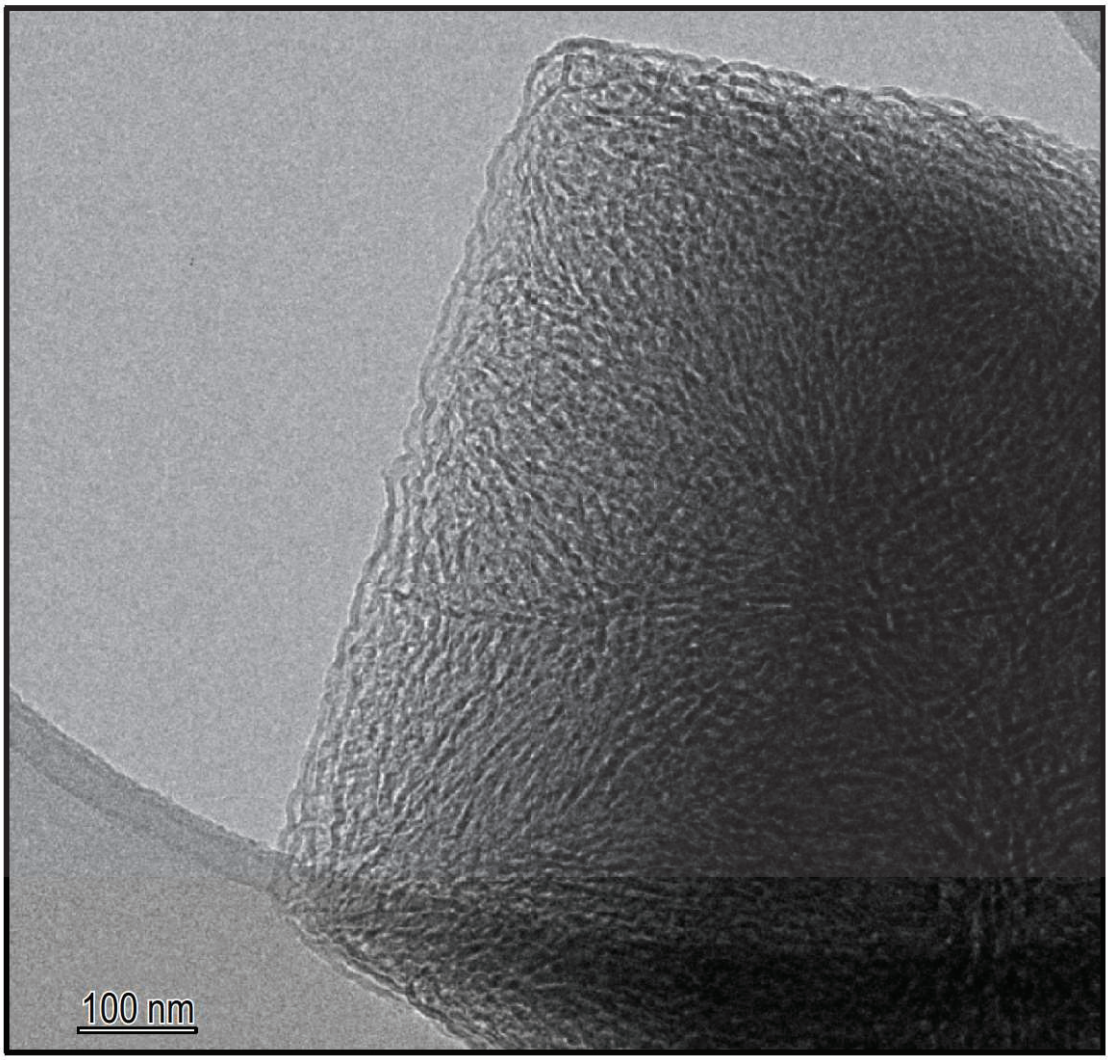


FIG. 101A

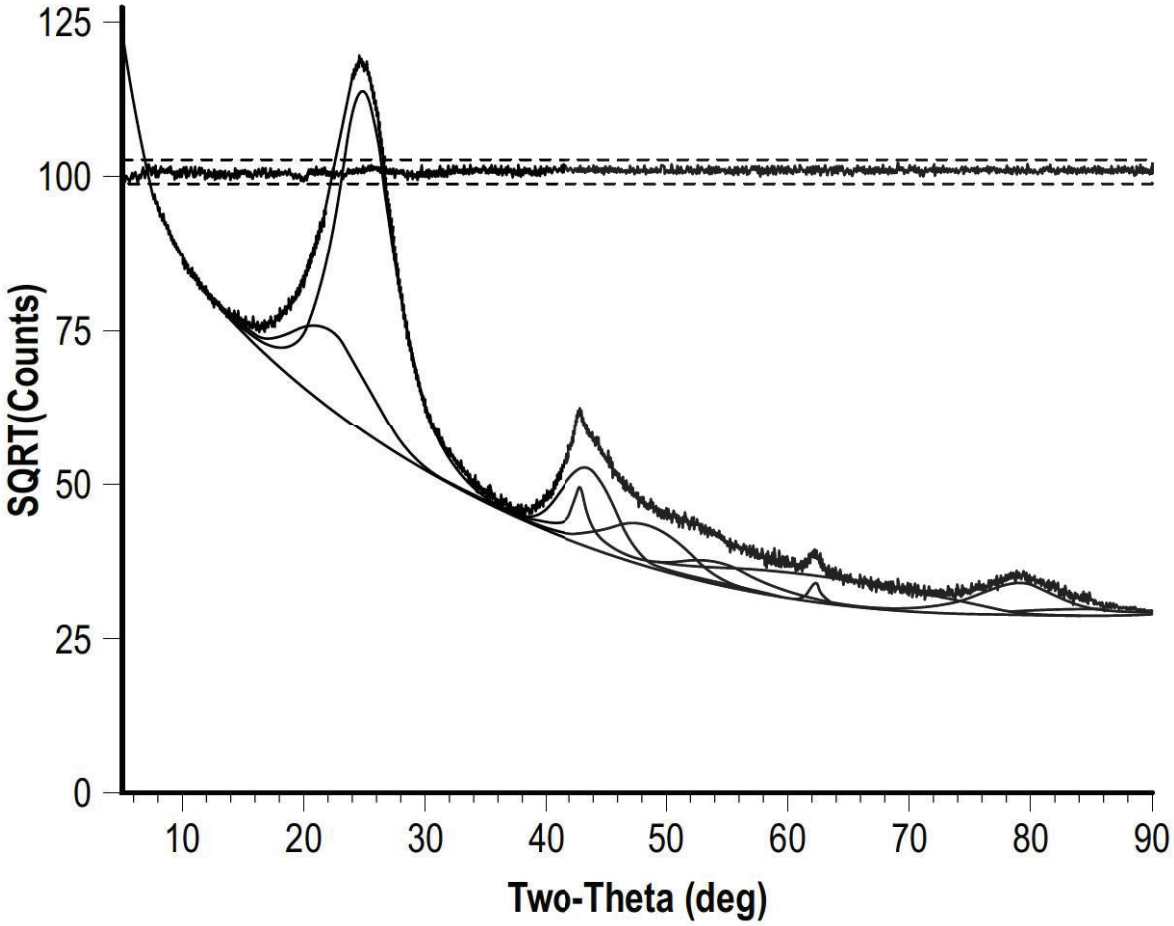

125
100
75
50
25
0
SQRT(Counts)
10
20
30
40
50
60
70
80
90
Two-Theta (deg)

FIG. 101B

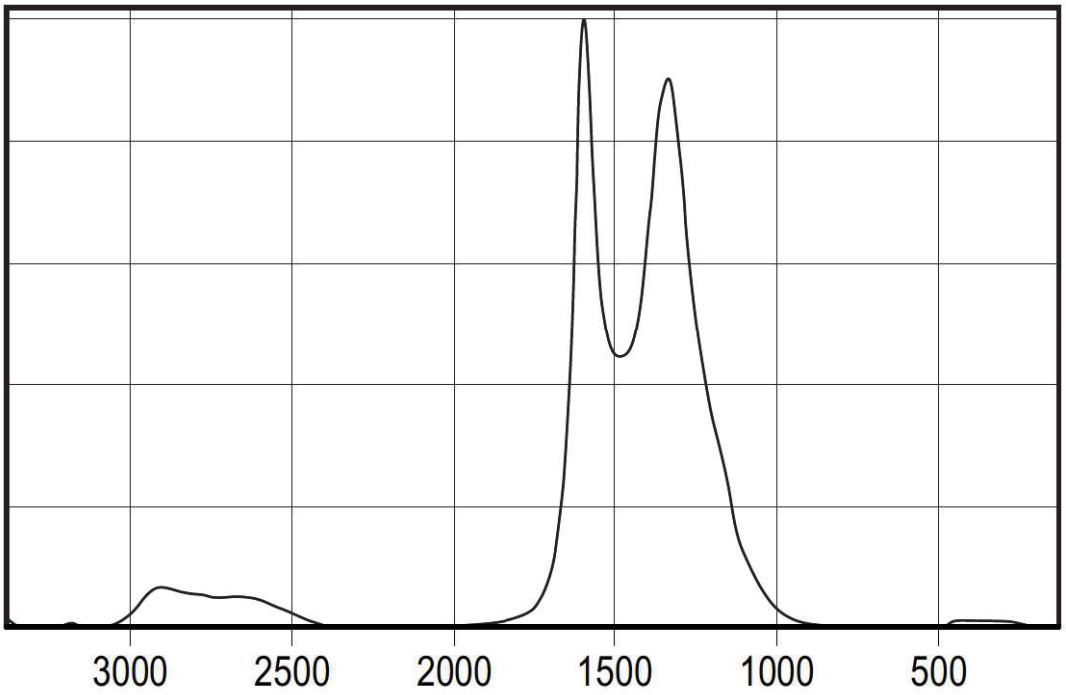


FIG. 101C

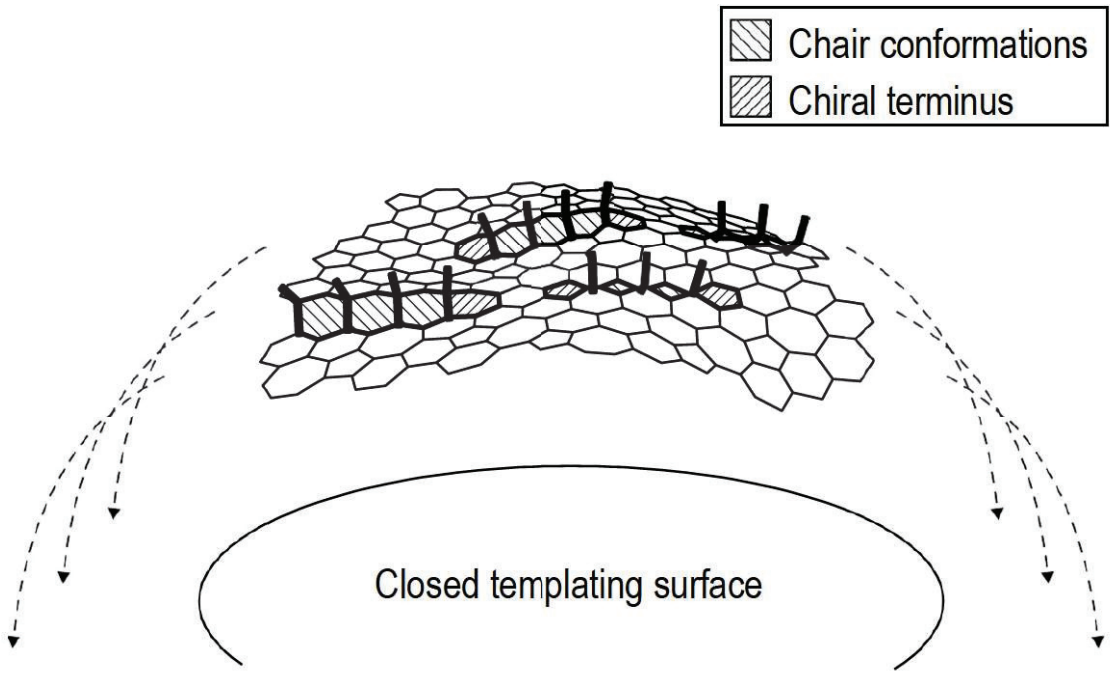

Chair conformations
Chiral terminus
Closed templating surface

FIG. 102



FIG. 103A



FIG. 103B

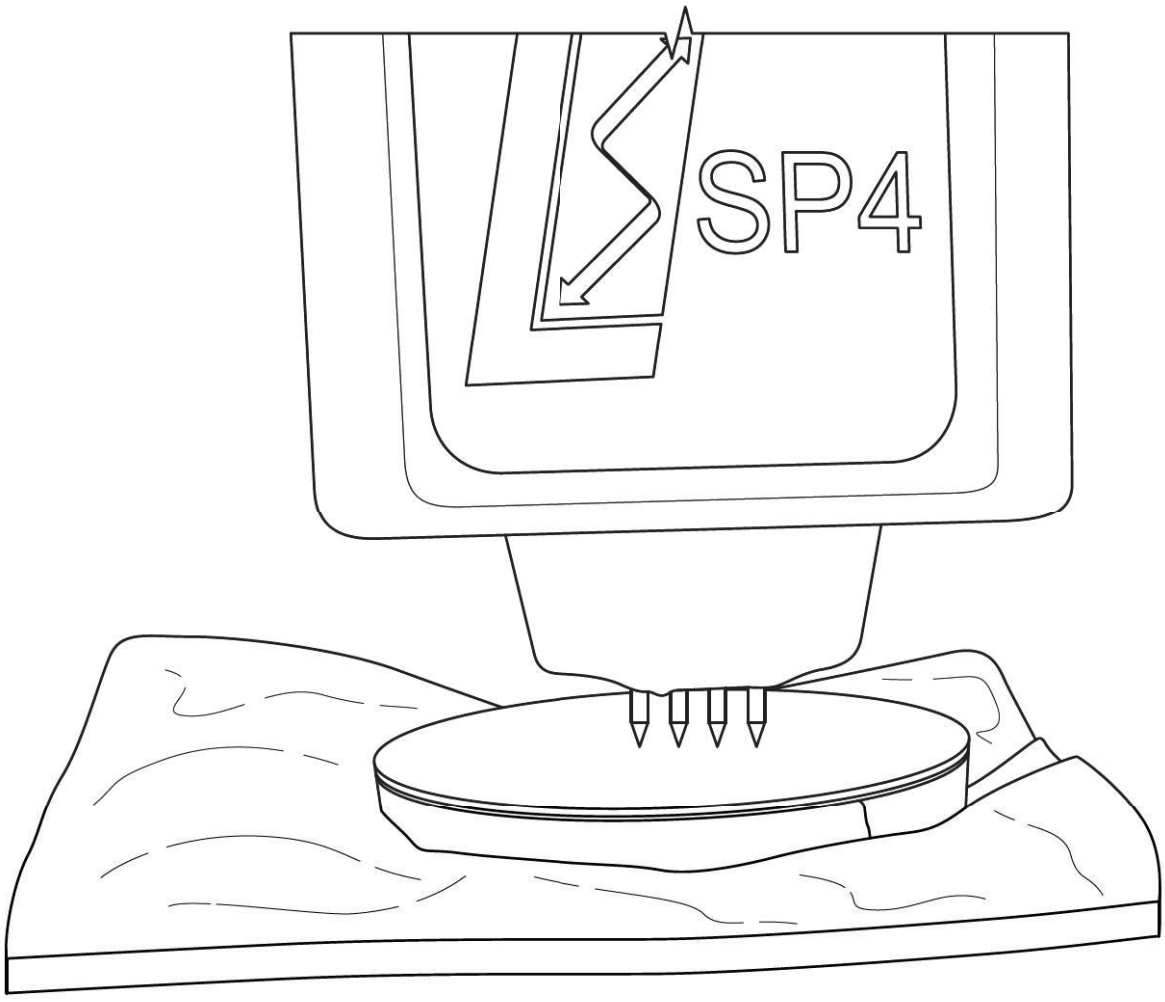


FIG. 104

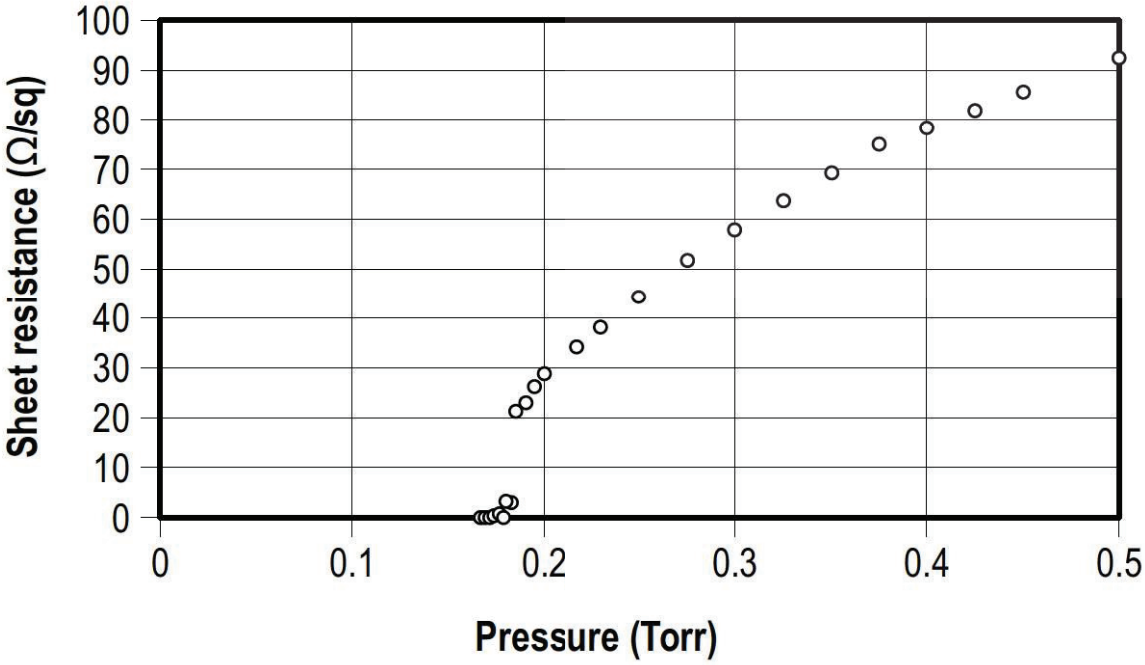

Sheet resistance (Ω/sq)
100
90
80
70
60
50
40
30
20
10
0
0
0.1
0.2
0.3
0.4
0.5
Pressure (Torr)

FIG. 105

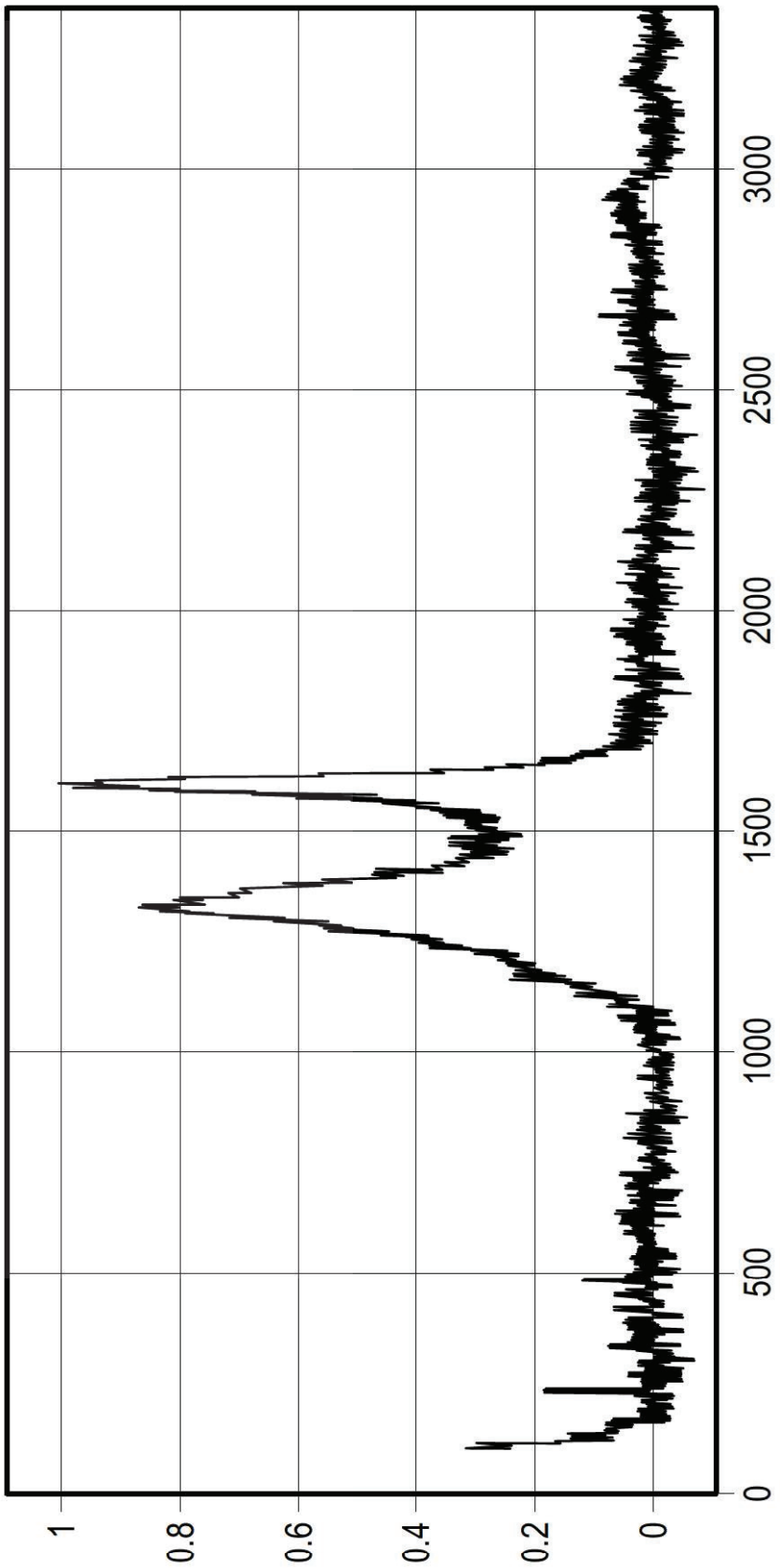


FIG. 106

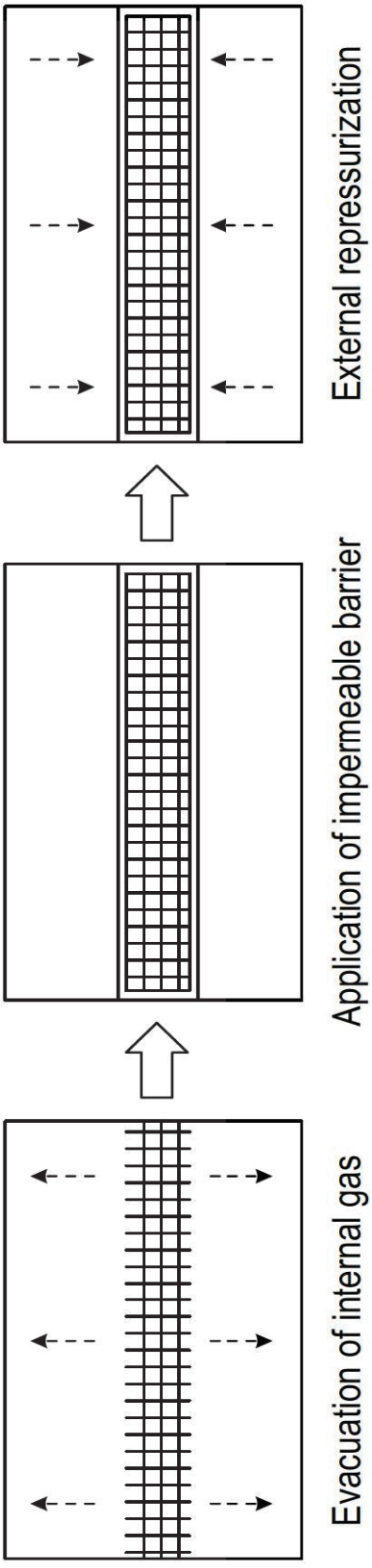

Evacuation of internal gas
Application of impermeable barrier
External repressurization

FIG. 107

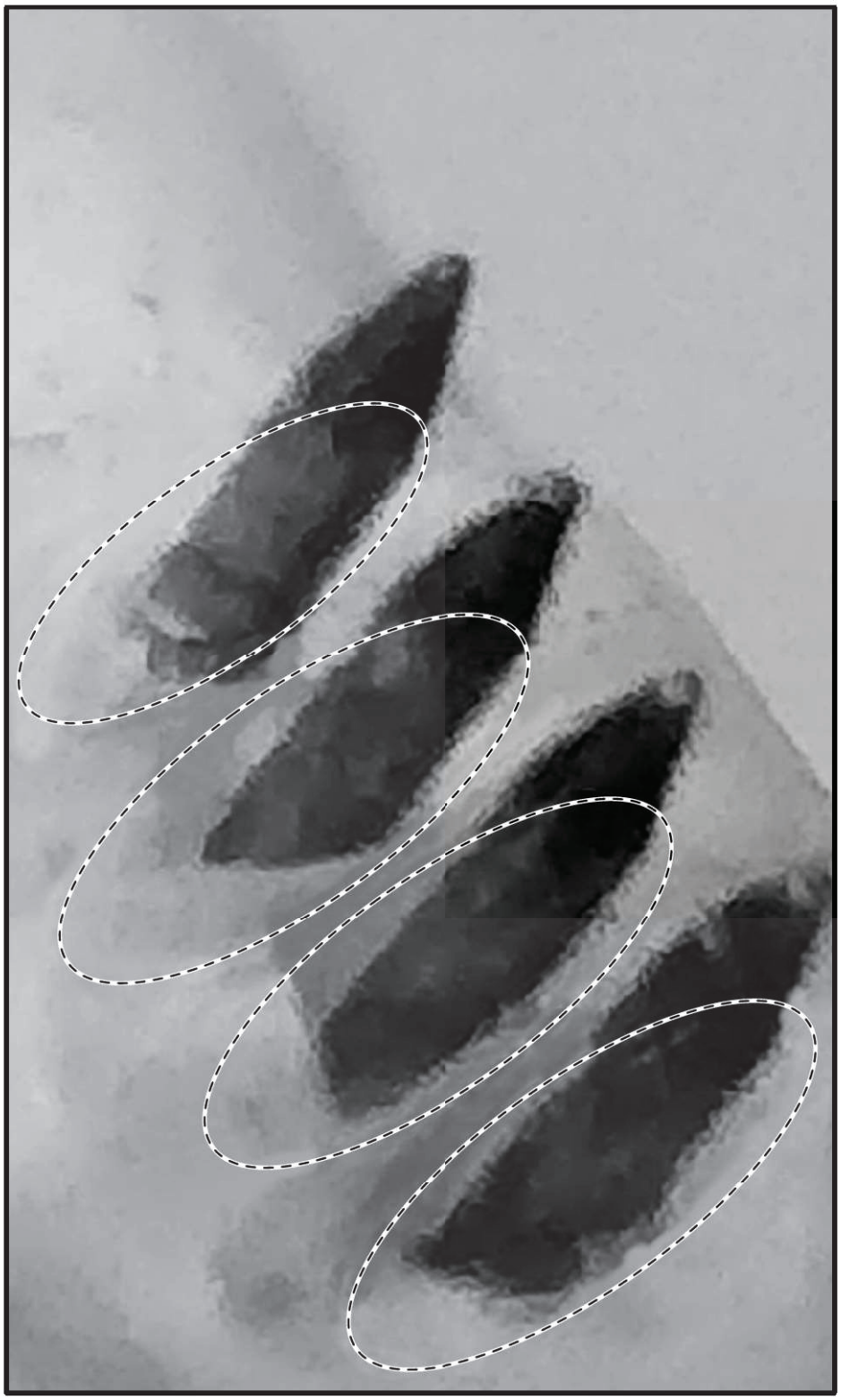


FIG. 108

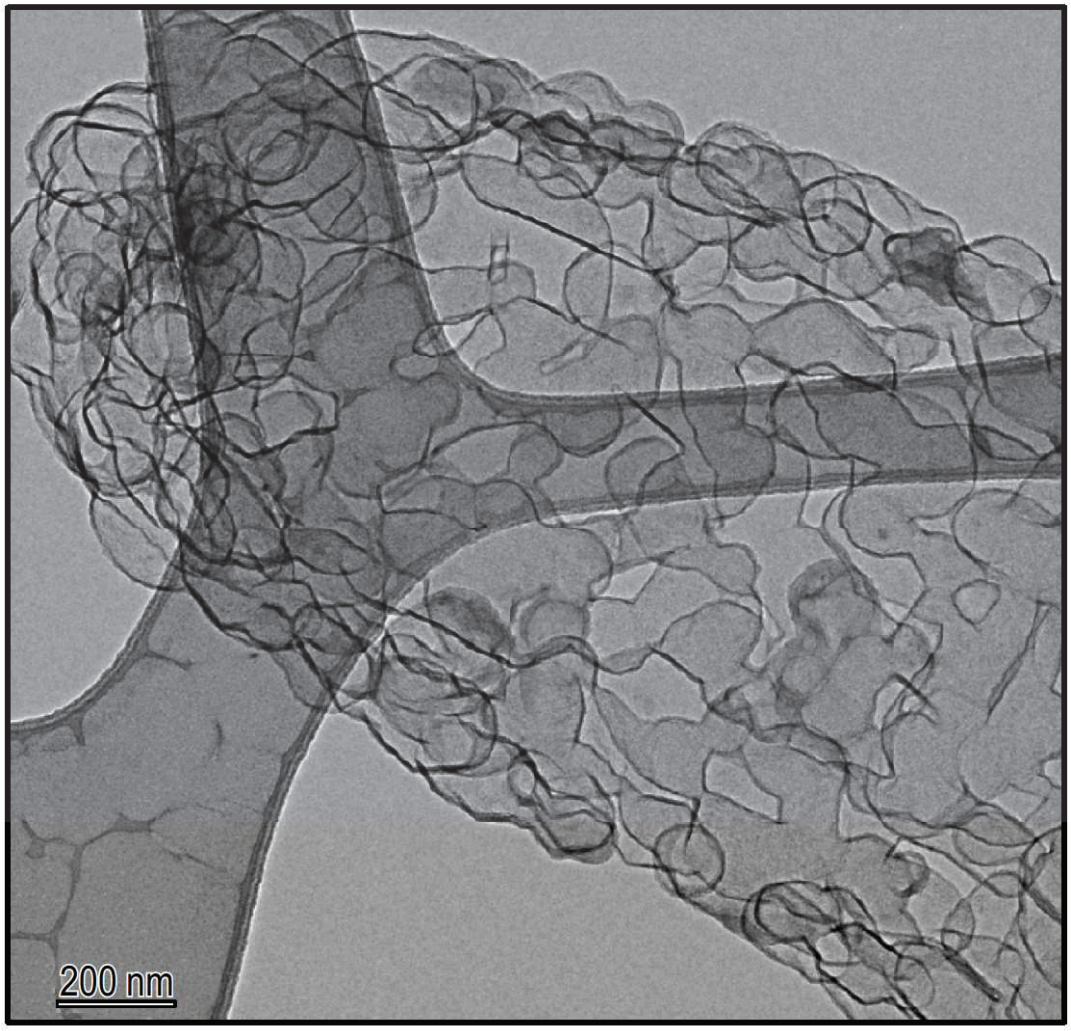


FIG. 109A

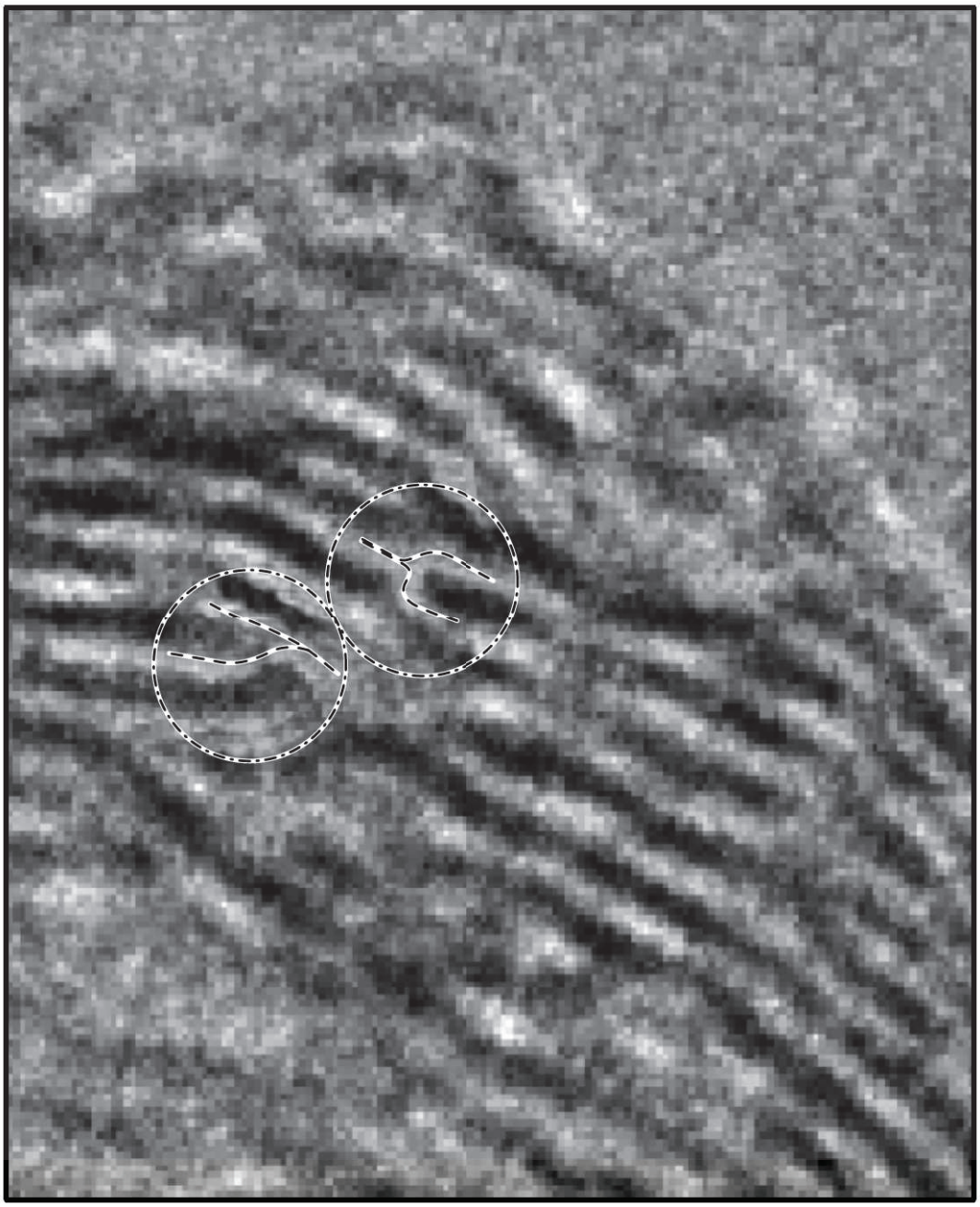


FIG. 109B

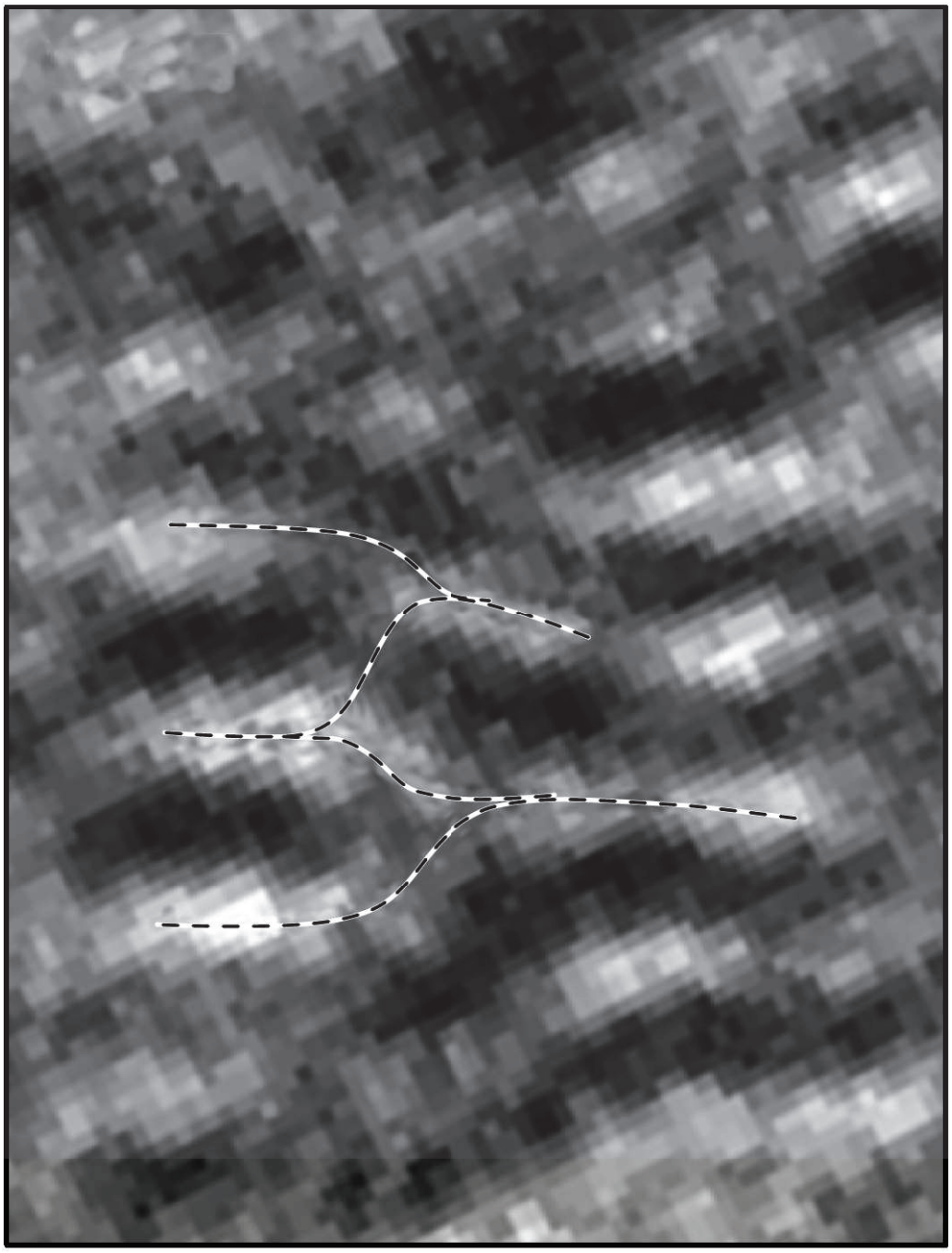


FIG. 109C