

Supplementary Information file

Highly Reliable AgNW/PEDOT:PSS Hybrid Films: Efficient Methods for Enhancing Transparency and Lowering Resistance and Haze

Seyul Kim,[†] So Yeon Kim,[†] Jeonghun Kim,[‡] and Jung Hyun Kim^{†}*

[†] Department of Chemical and Biomolecular Engineering, Yonsei University, 50 Yonsei-ro,

Seodaemun-gu, Seoul 120–749, Republic of Korea. E-mail: jayhkim@yonsei.ac.kr

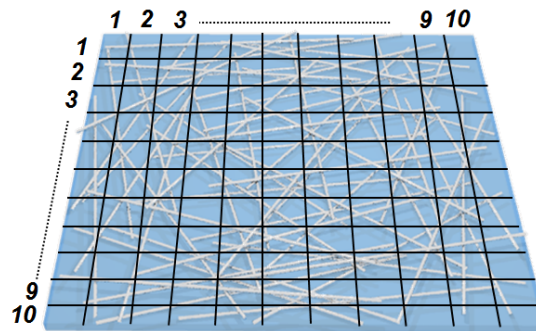
[‡] Electronic Materials Division, R&D Center, Dongjin Semichem Co., LTD, 625-3 Yodang-Ri, Yanggam-Myeon, Hwaseong-Gun, Gyeonggi-Do, Republic of Korea

Measurement of sheet resistance and study of reliability

In our study, we measured sheet resistance 100 times at different area of films (75 x 75 mm²) as shown in **Figure S1-4** and calculated average values of each samples for reliability. We calculated the standard deviation value from 100 sheet resistance values for comparing the reliability in large area sample.

S1. Only silver nanowire film

Figure S1. Silver nanowire film and sheet resistance data according to concentration of solution.



<0.3 wt% AgNW solution>

135.9	242.4	391.9	343.4	349	337.1	349.3	338.2	248.8	302
340.7	415.5	329.2	254.9	271	261	264.4	281.7	284.3	327.6
416.8	310.8	261	181	196.2	209.4	248.2	258.5	343.7	270.2
399.5	296.7	234.2	276.2	292.4	366.2	328.5	336	285	273.6
318.3	256.3	203.8	239.1	159.6	124.6	289.8	284.8	303.6	305.4
408.4	265.3	230.7	186.7	139.1	172.3	231.2	353.1	244.5	262.5
396.7	304	227.9	267.7	161.1	146.7	289.7	367.4	293.2	268.3
468.5	444.4	272.3	258.2	254.9	314.2	296.9	275.8	297.2	275.6
308.3	411.8	353	320.5	268.3	276.2	293.2	318.9	342.1	316.5
174	161.5	398.6	357.8	324	351	440.8	314.1	189.9	222.2

<0.4 wt% AgNW solution>

93.12	100.2	151	147.2	165.4	166.6	150	159.4	152.1	106.2
145.4	148.1	143.6	130.1	135.7	134.9	145.9	162.5	158.2	148.9
176	155.4	138.8	136.3	169.8	176.6	115.6	139.8	168	187.8
151.9	145	115.7	178.6	120.4	117.7	161.1	116.3	151.5	179.2
166.8	147.7	129.9	163.1	108.8	98.46	139.4	107	152.5	176.7
170.5	127.2	126.9	219.9	96.46	106.3	201	102.3	142.4	148.1
163.9	151.1	130.4	156.4	155.5	170.4	132.8	126.2	135	160.6
128.6	132	135.8	149.6	143.9	127.8	115.7	126.1	147.8	174
100.3	175.6	162.2	154.5	144.6	145	145.2	152.4	139.8	122.3
81.64	134.2	160.6	167	159	164.3	172.6	157.5	108.9	97.86

<0.6 wt% AgNW solution>

62.89	68.34	82.83	79.09	89.28	85.48	95.46	82.6	58.5	57.18
79.33	81.78	80.45	66.8	56.5	63.02	80.35	86.54	65.29	62.13
86.24	80.34	60.88	46.27	47.5	45.09	66.45	77.75	71.57	82.72
84.78	70.79	46.27	49.92	47.25	49.28	51.16	68.19	70.74	81.01
84.89	67.05	63.15	48.53	44.66	47.38	39.19	68.24	81.59	75.05
78.35	59.73	49.7	46.51	43.98	44.19	35.51	71.36	84.71	83.35
86.64	72.6	44.62	48.34	58.69	50.41	46.45	75.86	86.05	90.2
78.9	76.99	67.78	52.68	41.81	38.79	65.57	87.25	95.2	87.36
56.6	81.32	77.57	78.97	66	69.18	67.69	91.38	68.97	69.43
53.74	70.96	86.32	87.04	81.9	91.3	83.31	56.21	50.03	57.76

<0.8 wt% AgNW solution>

31.79	34.01	54.88	51.49	44.28	44.7	51.65	50.8	40.06	27.17
44.16	48.59	48.34	36.98	36.74	36.63	41.06	48.39	52.58	37.77
51.68	42.85	34.25	26.26	30.41	22.66	26.9	36.65	50.63	43.78
48.69	39.6	34.02	32.44	26.26	27.32	28.43	33.33	44.02	50.63
43.05	30.06	30.08	25.84	24.83	28.17	30.6	25.59	37.5	47.01
50.78	34.77	44.62	29.97	27.25	25.71	32.17	23.14	36.2	41.4
43.17	36.26	37.67	34.91	28.62	34.33	35.45	32.97	42.04	46.46
44.1	42.46	34.61	40.09	37.37	35.19	28.1	36.77	49.4	45.61
32.88	46.02	41.77	39.76	36.41	37.88	41.16	40.57	47.18	38.25
33.44	39.72	47.54	41.31	47.26	45.27	42.9	40.46	33.85	28.77

<1.0 wt% AgNW solution>

93.12	100.2	151	147.2	165.4	166.6	150	159.4	152.1	106.2
145.4	148.1	143.6	130.1	135.7	134.9	145.9	162.5	158.2	148.9
176	155.4	138.8	136.3	169.8	176.6	115.6	139.8	168	187.8
151.9	145	115.7	178.6	120.4	117.7	161.1	116.3	151.5	179.2
166.8	147.7	129.9	163.1	108.8	98.46	139.4	107	152.5	176.7
170.5	127.2	126.9	219.9	96.46	106.3	201	102.3	142.4	148.1
163.9	151.1	130.4	156.4	155.5	170.4	132.8	126.2	135	160.6
128.6	132	135.8	149.6	143.9	127.8	115.7	126.1	147.8	174
100.3	175.6	162.2	154.5	144.6	145	145.2	152.4	139.8	122.3
81.64	134.2	160.6	167	159	164.3	172.6	157.5	108.9	97.86

<1.2 wt% AgNW solution>

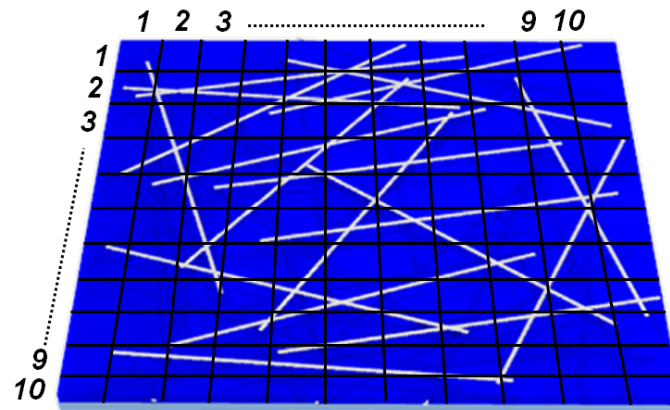
62.89	68.34	82.83	79.09	89.28	85.48	95.46	82.6	58.5	57.18
79.33	81.78	80.45	66.8	56.5	63.02	80.35	86.54	65.29	62.13
86.24	80.34	60.88	46.27	47.5	45.09	66.45	77.75	71.57	82.72
84.78	70.79	46.27	49.92	47.25	49.28	51.16	68.19	70.74	81.01
84.89	67.05	63.15	48.53	44.66	47.38	39.19	68.24	81.59	75.05
78.35	59.73	49.7	46.51	43.98	44.19	35.51	71.36	84.71	83.35
86.64	72.6	44.62	48.34	58.69	50.41	46.45	75.86	86.05	90.2
78.9	76.99	67.78	52.68	41.81	38.79	65.57	87.25	95.2	87.36
56.6	81.32	77.57	78.97	66	69.18	67.69	91.38	68.97	69.43
53.74	70.96	86.32	87.04	81.9	91.3	83.31	56.21	50.03	57.76

<1.4 wt% AgNW solution>

14.69	15.71	14.55	15.81	17.29	15.64	15.44	19.49	16.69	17.85
18.15	16.05	15.87	16.51	12.5	11.95	14.5	17.38	16.69	17.68
19.35	14.84	11.75	9.78	10.15	9.214	10.38	14.57	16.43	18.6
14.94	13.98	10.11	10.57	10.21	12.16	9.722	11.06	13.89	19.39
18.19	14.08	9.46	10.06	10.01	9.723	11.51	11.16	13.58	18.14
17.91	13.58	9.94	10.21	9.837	10.36	12.55	9.834	12.76	19.56
19.67	14.84	10.97	10.5	11.76	12.46	10.57	13.05	16.05	20.29
17.39	16.68	12.61	11.53	9.86	9.784	12.27	14.62	18.45	19.45
14.6	17.14	15.35	17.57	16.75	17.33	16.85	18.11	19.89	15.32
14.28	15.79	17.59	15.16	18.74	16.83	14.72	15.92	13.94	14.23

S2. Single-coated silver nanowire + PEDOT:PSS film

Figure S2. Single-coated silver nanowire/PEDOT:PSS film and sheet resistance data according to concentration of solution.



<0.3 wt% AgNW solution/PEDOT:PSS>

119.6	137.9	191.7	175.4	178.3	172.5	185	183.8	181.4	134.2
164	207.7	172.8	139.6	140.5	136.4	143.6	152.2	170	145.5
188	176.8	138.2	105	116.6	118.8	114.1	136.5	154.4	171.6
187.2	153.6	107.5	119.9	108.6	113.4	137.9	140.5	145.1	175.9
179.7	139.2	105.2	119	73.92	71.68	120.7	129	149	166.7
188.7	146.7	110.9	116.7	76.06	95.52	113.3	113.1	151.3	152.8
187.4	162.8	126.1	114.1	103.4	95.41	124	150.6	141.4	176.9
190	190.8	148.9	130.6	119.1	137.4	141.3	146.5	165	168
135.9	208.8	178	166.1	143.7	155	152.8	156.6	179.6	187.4
103.3	145.8	199.6	203.5	180.1	191.9	209.1	187.1	150.4	119.7

<0.4 wt% AgNW solution/PEDOT:PSS>

72.06	78.25	96.17	100.4	101	99.1	102	113.3	115.4	80.95
90.33	104.5	95.29	84.64	79.5	81.67	90.21	93.8	101.1	105.7
107.1	94.51	78.73	76.54	84.39	78.74	68.11	81.65	102.5	115.9
102.6	93.41	70.36	90	63.92	65.7	80.77	66.25	88.77	110
107.9	88.98	79.93	69.87	56.32	57.9	71.07	62.73	84.07	119.6
103.1	88.07	82.6	98.73	57.84	59.66	81.69	61.12	92.91	105.7
98.89	88.58	69.82	86.92	86.87	90.51	68.5	78.88	96.32	104.8
84.12	92.5	83.81	83.59	77.85	74.37	62.26	89.22	95.01	105.2
69.01	102.5	97.93	91.68	93.98	94.31	100.1	95	101.4	77.06
62.2	90.49	105.8	106.6	104.7	110.5	107.1	106.8	81.46	74.47

<0.6 wt% AgNW solution/PEDOT:PSS>

48.32	49.2	56.94	56.73	59.69	58.97	56.26	61.5	51.68	43.78
50.55	58.47	56.56	46.11	48.67	46.15	48.22	54.25	55.44	46.39
57.49	57.25	46.03	32.12	30.4	33.13	37.06	42.77	55.65	60.35
58.75	48.49	34.45	36.02	38.66	33.19	34.28	36.73	45.85	49.15
59.02	44.97	36.93	32.36	32.05	32.76	39.76	28.29	43.06	55.26
60.13	42.52	31.6	34.89	32.01	33.48	34.53	29.47	49.3	54.86
57.44	47.9	31.87	34.85	32.5	33.69	38.22	34.98	53.09	60.92
51.74	55.01	46.16	35.63	32.48	29.67	31.02	44.81	54.97	62.32
44.04	57.55	55.52	49.51	40.88	48.88	49.81	54	63.89	50.45
49.01	57.56	59.84	60.79	58.14	61.82	58.75	57.79	43.4	40.75

<0.8 wt% AgNW solution/PEDOT:PSS>

30.95	30.97	39.45	35.2	34.09	35.78	41.5	39.65	35.75	29.44
38.36	40.9	32.99	30.07	28.93	27	30.61	36.81	38.58	31.46
40.06	36.68	27.79	38	21.09	20.08	21.42	29.48	38.11	35.77
37.07	28.04	26.1	24.19	20.54	22.85	22.16	24.17	32.16	38.54
34.97	26.04	22.65	21.06	20.65	20.45	24.31	19.78	29.37	36.88
36.46	28.5	29.6	20.67	21.25	20.29	23.9	19.49	30.31	33.82
35.63	28.62	28.63	26.19	22.86	25.03	24.71	27.19	33.27	41.02
37.05	33.06	26.71	31.73	28.81	28.58	23.57	30.83	38.98	42.98
29.65	35.67	35.16	30.87	27.84	29.3	29.23	33.32	37.28	32.96
28.61	35.81	37.16	35.16	38.22	34.78	38.7	36.13	28.39	26.94

<1.0 wt% AgNW solution/PEDOT:PSS>

22.74	23.47	28.41	26.19	26.95	29.56	26.45	38.52	29.19	21.74
29.14	29.58	23.05	20.78	19.78	19.79	24.39	26.3	29.92	23.84
31.58	24.48	20.24	14.35	16.05	14.35	15.4	21.41	25.69	29.98
31.78	22.09	15.17	18.03	15.12	16.44	17.01	18.36	20.92	28.2
27.29	19.98	15.09	15.46	14.56	14.54	18	14.7	20.4	28.58
28.36	21.53	17.9	19.31	16.43	15.35	16.96	13.45	20.95	29.3
27.45	22.65	15.17	16.45	17.48	18.53	16.35	19	22.92	30.1
27.9	24.98	21.92	15.23	15	14.42	17.58	22.32	24.25	31.43
25.14	26.97	29.04	21.93	21.96	23.11	26.95	27.66	28.06	24.87
20.77	26.55	26.81	25.63	29.03	29.37	26.43	28.8	22.71	18.79

<1.2 wt% AgNW solution/PEDOT:PSS>

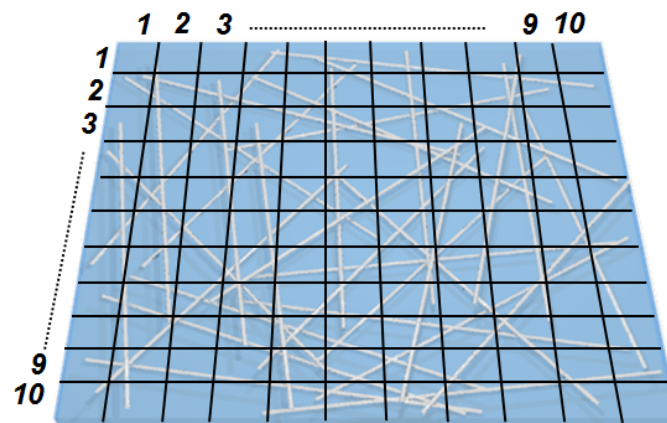
16.42	18.91	22.74	20.49	20.83	19.85	21.1	20.96	20.81	16.51
20.17	19.52	20.11	17.88	15.6	17.11	17.37	22.58	21.39	18.01
22.33	17.95	14.92	12.07	11.51	10.33	12.72	17.41	20.91	21.44
22.28	17.55	11.2	13.11	13.09	13.24	12.5	13.58	19.62	20.55
18.92	13.7	12.52	12.15	11.02	11.72	11.4	11.07	17.42	20.1
21.18	16.43	12.89	12.36	11.86	11.34	13.49	10.14	16.76	19.13
20.31	17.89	10.74	14.1	12.14	12.1	12.62	12.65	16.93	21.12
21.73	18.47	14.01	11.1	10.4	11.38	11.31	15.78	18.71	20.02
18.76	20.57	18.74	16.13	14.51	16.44	17.86	21.09	20.74	17.93
19.94	20.93	21.01	21.6	18.68	20.18	19.86	21.03	17.86	15.66

<1.4 wt% AgNW solution/PEDOT:PSS>

13.21	11.72	14.55	13.87	14.73	14.4	14.69	16.93	16.67	16.11
16.84	15.08	14.09	13.74	11.34	11.22	12.28	14.34	14.12	14.92
14.56	12.97	11.78	8.923	8.931	7.884	9.204	11.02	13.78	15.68
13.29	13.21	9.092	9.34	10.24	10.51	8.958	8.929	14.58	16.52
14.78	12.78	9.418	8.876	8.658	8.649	9.698	9.846	11.74	14.99
15.32	12.19	9.267	9.234	9.332	9.338	10.72	8.771	11.22	14.49
16.07	13.34	9.91	9.223	10.7	10.11	9.596	10.4	14.59	16.81
15.71	15.08	12.35	10.6	8.703	8.255	10.24	14.12	15.92	15.93
13.73	15.2	15.93	15.76	12.51	14.72	14.37	17.66	14.49	13.23
13.41	15.1	15.56	18.91	17.15	15.64	13.61	15.2	11.87	11.23

S3. Multi-coated silver nanowire film

Figure S3. Multi-coated silver nanowire film and sheet resistance data according to concentration of solution and coating number of time.



<1.4 wt% AgNW x 1>

16.87	21.01	20.74	21.68	23.94	23.94	18.92	18.47	19.92	20.74
19.11	22.61	19.46	18.34	18.77	18.63	19.49	22.25	23.28	17.44
28.81	22.62	16.91	14.53	15.05	13.67	13.5	17.6	20.1	20.75
21.8	21.45	15.07	10.69	11.93	12.15	11.3	12.27	19.02	22.85
18.47	19.79	13.03	12.86	11.39	12.35	11.1	12.93	14.29	20.2
20.55	19.03	13.68	12.95	11.47	10.42	13.17	11.26	15.17	18.19
20.79	22.51	15.06	11.1	13.6	14.14	11.18	11.42	16.66	18.55
22.22	23.36	18.1	14.84	11.35	11.2	13	13.62	19.27	23.39
16.75	23.83	21.4	19.31	15.89	16.21	18.24	17.49	22.41	19.54
20	19.25	25.14	22.83	23.08	24.47	20.99	21.99	19.27	14.57

<0.7 wt% AgNW x 2>

18.08	20.67	23.57	25.65	25.88	25.79	25.15	24.87	21.47	15.91
23.82	24.4	24.79	24.16	23.37	22.82	23.12	24.76	24.65	18.84
24.02	24.58	21.96	19.19	16.01	16.27	17.19	22.33	25.16	23.33
25.19	22.22	15.04	15.21	14.6	14.5	14.61	19.47	24.07	24.78
24.69	22.84	15.94	13.88	15.17	14.6	15.63	15.69	23.12	25.54
26.42	23.07	15.4	15	14.4	12.54	14.68	16.43	23.32	19.38
25.42	23.81	15.79	15.28	15.22	15.4	15.03	17.29	23.04	24.76
24.86	25.33	21.73	15.82	15.52	15.22	16.78	22.28	23.96	22.38
21.27	25.2	24.18	22.28	21.98	22.04	23.68	25.49	25.43	19.3
16.02	23.36	25.11	24.79	25.44	25.41	25.41	23.76	18.06	17.98

<0.47 wt% AgNW x 3>

17.93	19.23	24.15	24.92	24.86	25.01	23.26	24.37	24.12	15.29
21.41	24.75	24.71	23.67	22.98	22.7	23.69	25.55	24.78	19.22
24.03	24.77	23.15	18.36	16.44	16.8	19.16	23.21	24.07	23.7
24.64	23.71	18.83	15.76	16.81	16.33	16.49	19.11	23.26	24.01
25	23.74	17.15	18.55	16.31	16.77	16.13	17.44	22.32	25.46
24.64	23.11	17.32	15.66	16.59	16.26	16.61	16.32	22.63	24.35
24.58	23.65	16.58	15.7	15.9	15.52	15.8	16.24	24.62	25.2
23.19	24.21	23.1	17.85	16.61	16.07	17.87	22.59	24.94	24.95
17.44	24.1	24.4	22.69	22.81	22.85	23.37	25.07	25.13	21.8
15.86	21.89	25.07	24.89	24.64	25.09	24.09	24.56	15.98	16.98

<0.35 wt% AgNW x 4>

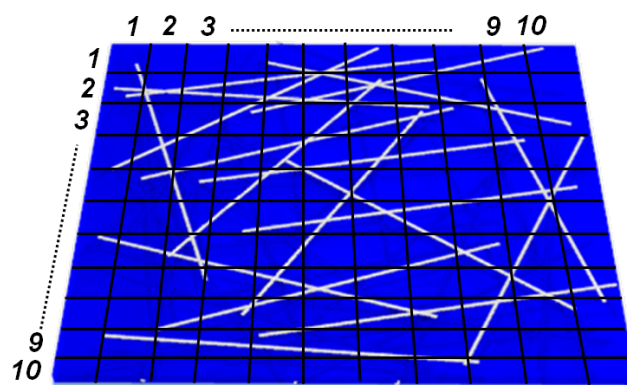
18.00	17.42	23.5	23.76	24.27	23.81	23.73	23.26	22.73	22.18
20.81	24.53	23.83	22.59	21.75	22.11	22.3	23.72	24.87	23.04
23.25	23.57	22.26	17.87	17.07	17.48	17.98	22.21	24.15	23.88
22.99	22.21	18.21	18.04	17.02	17.08	17.89	18.32	21.8	24.86
22.99	21.92	17.15	17.35	17.14	17.42	17.84	16.86	21.71	24.66
24.01	21.23	17.19	17.74	17.17	16.97	18.29	17.87	22.3	24.74
24.12	22.24	20.28	16.83	18.03	18.6	17.3	20.77	22.75	23.44
22.48	23.22	22.02	19.1	18.46	16.1	19.86	23.28	24.13	23.57
18.33	23.58	23.3	22.67	20.78	23.4	23.66	24.15	24.11	19.28
16.37	20.28	23.95	24.99	26.88	24.03	25.23	22.97	17.2	15.72

<0.27wt% AgNW x 5>

16.78	18.36	22.66	24.41	23.68	23.65	23.37	23.2	21.44	18.46
20.99	22.9	22.66	21.98	21.76	21.79	22.15	22.77	23.07	20.48
22.74	22.5	21.09	18.15	18.56	18.66	19.05	21.85	22.67	24.35
22.59	22.17	19.39	18.61	18.92	18.65	18.82	19.78	22.88	24.53
22.49	21.06	18.74	18.71	17.84	18.68	18.78	18.62	22.03	24.04
23.07	21.58	18.8	18.18	18.03	18.39	19.46	18.87	22.76	24.21
22.95	21.88	19.25	18.3	18.91	18.54	18.33	19.55	21.94	23.54
24.39	22.58	22.13	19.5	18.19	18.64	20.72	21.8	23.3	23.12
19.16	22.56	22.74	22.2	22	21.93	21.98	22.19	22.16	19.14
16.67	20.81	23.86	24.04	24.27	24.96	23.38	18.93	17.08	13.83

S4. Multi-coated silver nanowire + PEDOT:PSS film

Figure S4. Multi-coated silver nanowire/PEDOT:PSS film and sheet resistance data according to concentration of solution and coating number of time.



<1.4 wt% AgNW x 1 /PEDOT:PSS>

13.63	15.07	18.18	17.31	16.99	17.2	18.02	18.02	16.46	12.85
16.1	18.5	17.35	16.1	16.18	15.7	16.01	17.81	17.7	13.69
18.45	17.59	15.26	14.16	14.43	15.08	12.98	15.87	17.35	16.67
17.57	16.51	15.46	14.27	14.46	13.7	14.17	13.81	17.08	17.77
18	16.79	16.08	14.34	12.23	12.53	14.66	13.4	15.58	17.51
18.38	17.3	14.82	14.51	12.66	12.86	13.76	12.97	16.95	19.07
18.27	16.2	14.24	14.01	14.59	14.36	11.95	14.85	17.04	17.23
16.74	18.29	16.08	13.8	13.18	12.93	15.32	16.52	17.64	17.85
14.62	19.12	18.06	16.74	16.93	16.41	16.78	17.09	16.98	13.61
13.1	16.09	19.35	18.67	18.25	18.46	17.32	15.79	13.44	12.87

<0.7 wt% AgNW x 2 /PEDOT:PSS >

13.63	15.07	18.18	17.31	16.99	17.2	18.02	18.02	16.46	12.85
16.1	18.5	17.35	16.1	16.18	15.7	16.01	17.81	17.7	13.69
18.45	17.59	15.26	14.16	14.43	15.08	12.98	15.87	17.35	16.67
17.57	16.51	15.46	14.27	14.46	13.7	14.17	13.81	17.08	17.77
18	16.79	16.08	14.34	12.23	12.53	14.66	13.4	15.58	17.51
18.38	17.3	14.82	14.51	12.66	12.86	13.76	12.97	16.95	19.07
18.27	16.2	14.24	14.01	14.59	14.36	11.95	14.85	17.04	17.23
16.74	18.29	16.08	13.8	13.18	12.93	15.32	16.52	17.64	17.85
14.62	19.12	18.06	16.74	16.93	16.41	16.78	17.09	16.98	13.61
13.1	16.09	19.35	18.67	18.25	18.46	17.32	15.79	13.44	12.87

<0.47 wt% AgNW x 3 /PEDOT:PSS>

15.67	16.67	18.78	19.84	19.31	19.34	19.5	20	19.1	16.68
17.09	19.54	19.55	18.52	17.03	16.98	17.29	19.35	19.86	16.59
20.05	18.9	17.55	16.02	16.91	15.02	16.85	18.07	19.08	19.92
20.16	17.03	16.34	15.31	15.83	15.38	16.01	16.43	18.64	19.92
20.13	16.47	15.18	15.39	15.19	15.83	16.96	16.94	17.86	20.27
19.95	18.11	15.68	15.94	15.17	15.08	16.32	16.74	17.86	19.91
19.77	18.75	16.21	16	15.86	16.19	16.4	16.03	18.65	18.96
18.03	19.55	18.02	16.58	16.66	16.2	16.15	18.77	19.75	19.91
16.35	20	19.38	18.06	18.2	18.4	18.71	20.08	20.02	17.56
15.57	19.02	19.79	19.11	19.97	20.68	20.28	16.91	16.42	16.2

<0.35 wt% AgNW x 4 /PEDOT:PSS >

16.33	17.22	20.19	19.98	20.08	19.68	20.47	20.98	18.54	16.31
19.22	20.78	20.3	18.58	17.58	16.99	17.88	19.92	20.58	16.34
21.63	20.22	18.09	16.57	16.76	16.77	16.66	17.64	19.75	20.74
20.62	18.88	16.42	16.94	16.43	16.48	16.9	16.59	18.94	20.3
20.73	18.68	16.22	16.06	16.61	16.81	16.11	16.69	17.92	20.31
19.95	17.46	16.75	16.62	16.27	16.76	16.75	16.65	18.19	20.52
21.43	19.72	16.56	16.01	16.72	16.61	16.83	16.72	19.68	20.79
20.1	20.49	18.1	16.01	16.55	16.64	16.97	17.81	20.38	21.1
16.87	20.42	20.54	18.59	18.25	17.22	19.03	20.21	19.67	18.46
16.16	18.72	21.37	20.57	21.39	20.43	20.94	20.19	16.88	16.1

<0.27 wt% AgNW x 5 /PEDOT:PSS >

16.78	18.36	22.66	24.41	23.68	23.65	23.37	23.2	21.44	18.46
20.99	22.9	22.66	21.98	21.76	21.79	22.15	22.77	23.07	20.48
22.74	22.5	21.09	18.15	18.56	18.66	19.05	21.85	22.67	24.35
22.59	22.17	19.39	18.61	18.92	18.65	18.82	19.78	22.88	24.53
22.49	21.06	18.74	18.71	17.84	18.68	18.78	18.62	22.03	24.04
23.07	21.58	18.8	18.18	18.03	18.39	19.46	18.87	22.76	24.21
22.95	21.88	19.25	18.3	18.91	18.54	18.33	19.55	21.94	23.54
24.39	22.58	22.13	19.5	18.19	18.64	20.72	21.8	23.3	23.12
19.16	22.56	22.74	22.2	22	21.93	21.98	22.19	22.16	19.14
16.67	20.81	23.86	24.04	24.27	24.96	23.38	18.93	17.08	13.83