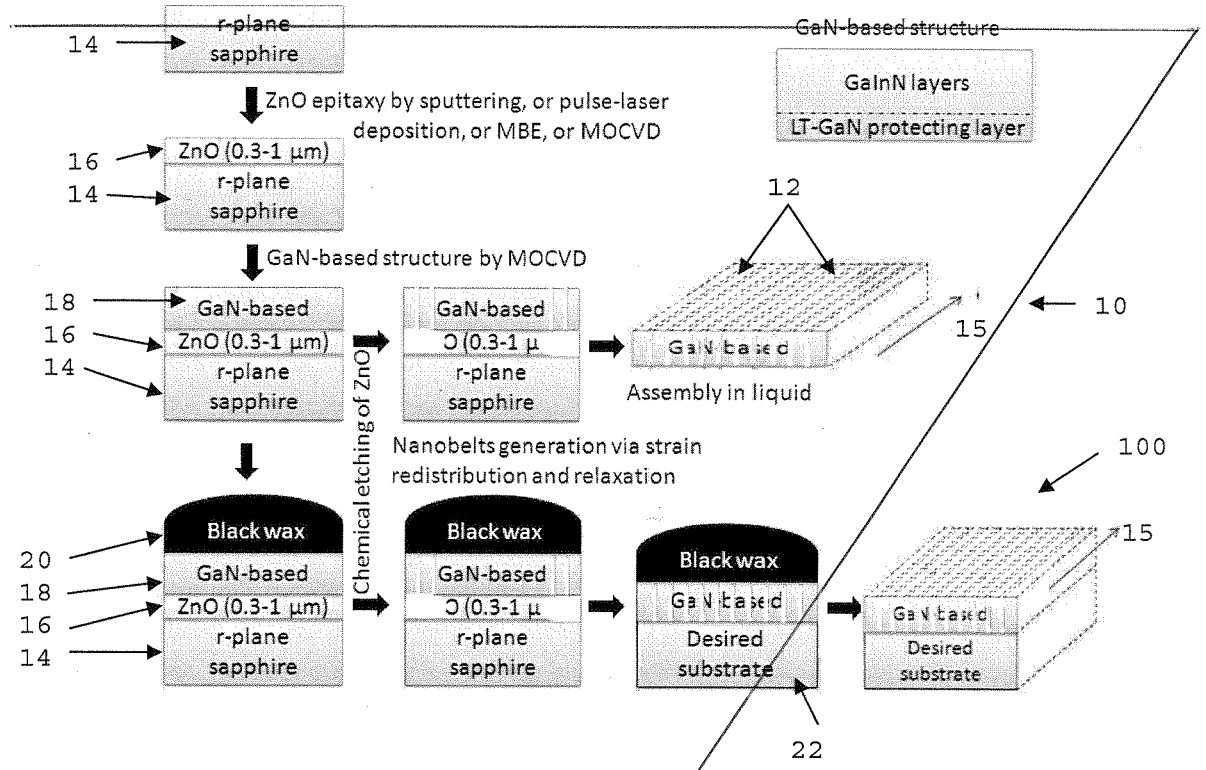

14
r-plane sapphire
ZnO epitaxy by sputtering, or pulse-laser deposition, or MBE, or MOCVD
16
ZnO (0.3-1 μm)
14
r-plane sapphire
GaN-based structure by MOCVD
18
GaN-based
16
ZnO (0.3-1 μm)
14
r-plane sapphire
Chemical etching of ZnO
GaN-based
ZnO (0.3-1 μ
r-plane sapphire
Assembly in liquid
Nanobelts generation via strain redistribution and relaxation
GaN-based structure
GaInN layers
LT-GaN protecting layer
12
15
10
100
20
Black wax
18
GaN-based
16
ZnO (0.3-1 μm)
14
r-plane sapphire
Black wax
GaN-based
ZnO (0.3-1 μ
r-plane sapphire
Black wax
GaN based
Desired substrate
22
15
GaN based
Desired substrate

Fig. 1

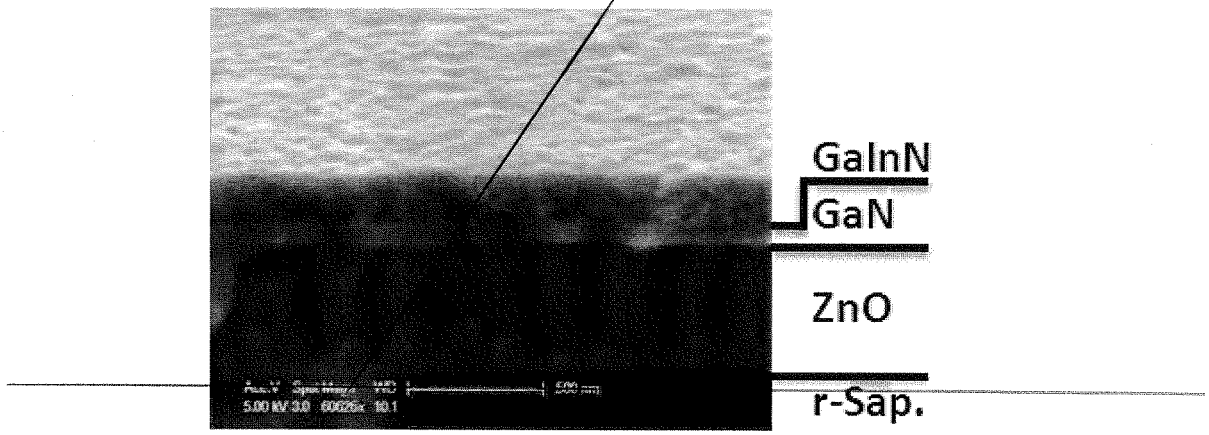

GaInN
GaN
ZnO
r-Sap.

Fig. 2

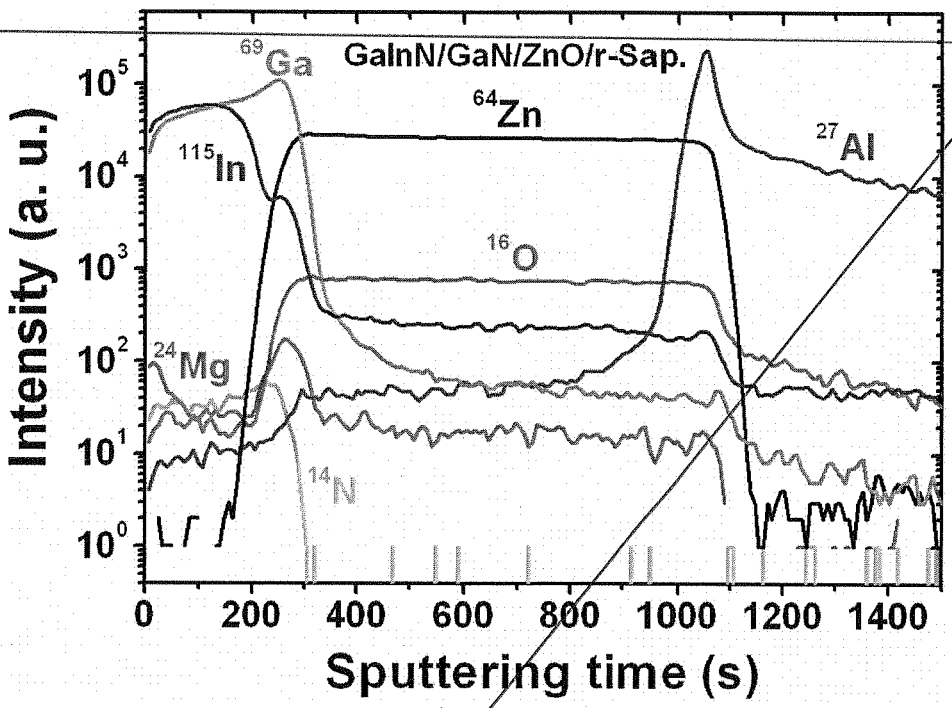


Fig. 3

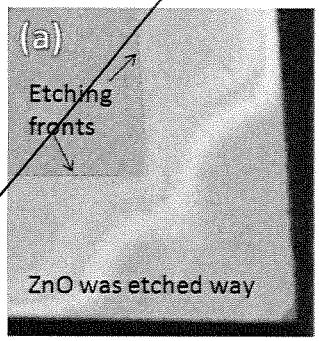
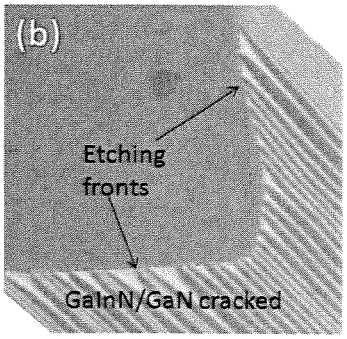


Fig. 4(a)



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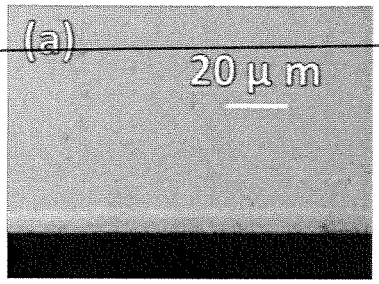
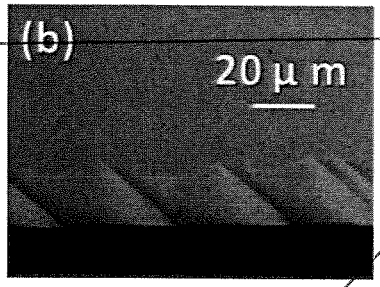


Fig. 5(a)



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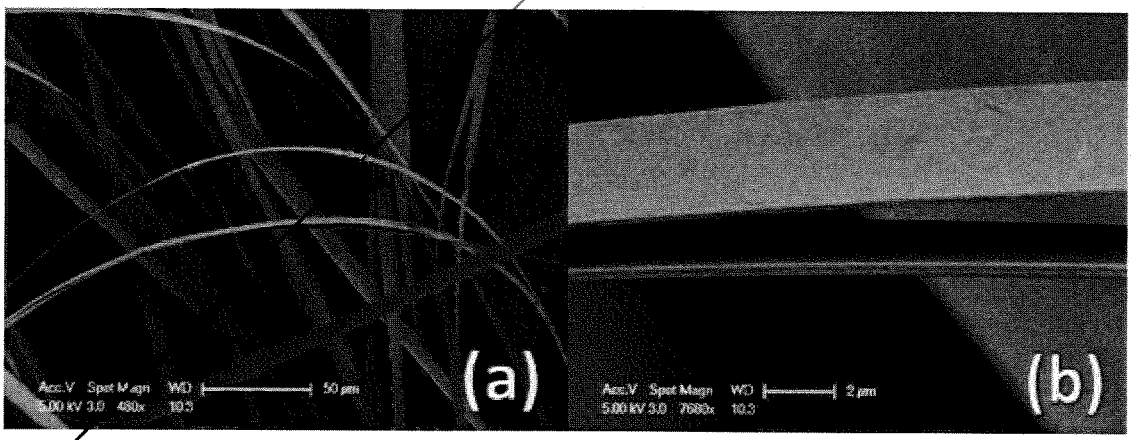


Fig. 6(a)

Fig. 6(b)

Fig. 7(a)

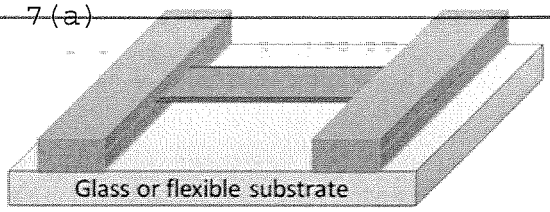


Fig. 7(b)

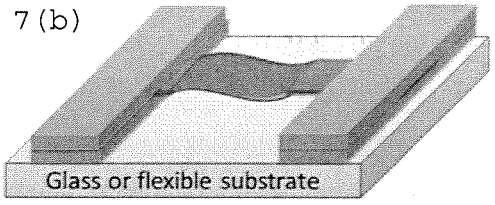
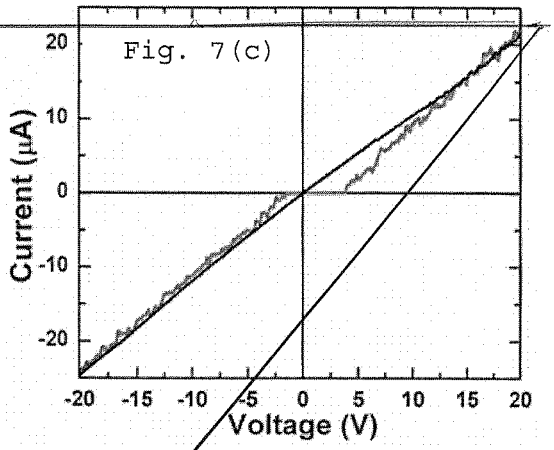


Fig. 7(c)



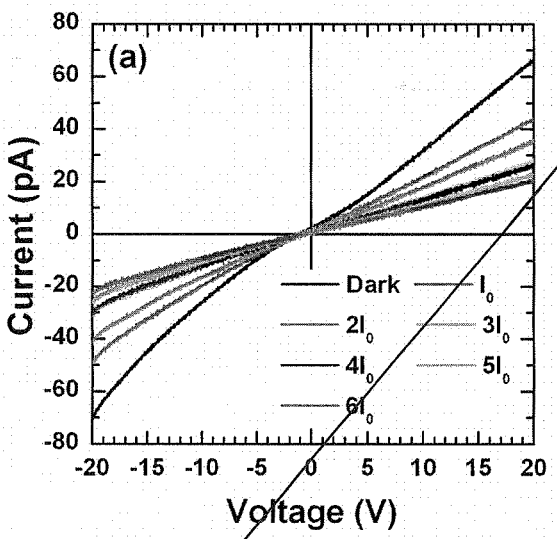


Fig. 8(a)

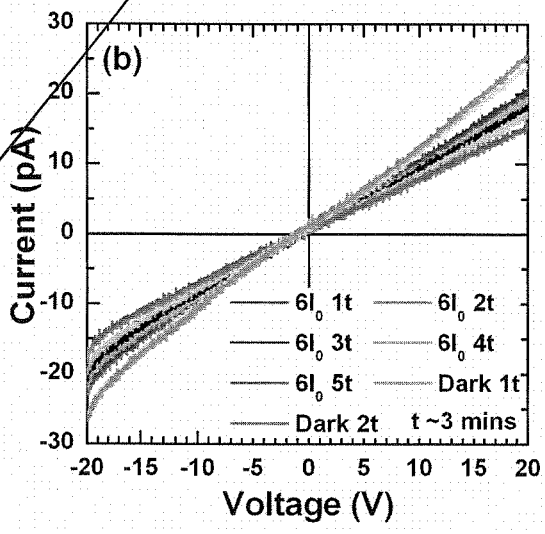


Fig. 8(b)

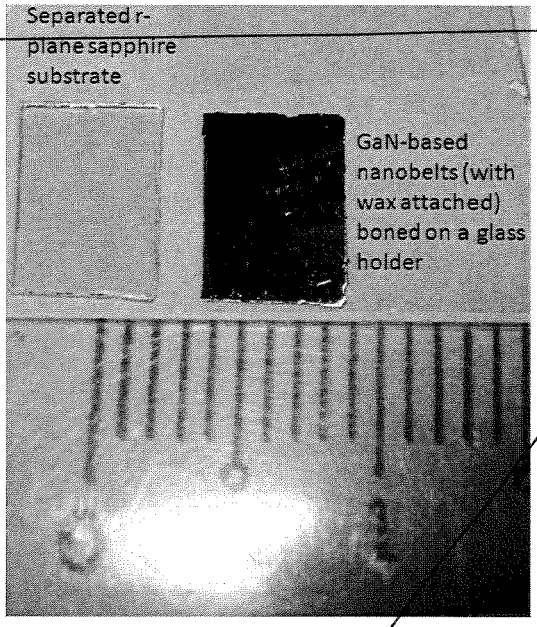


Fig. 9

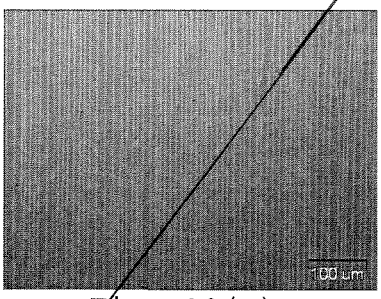


Fig. 10(a)

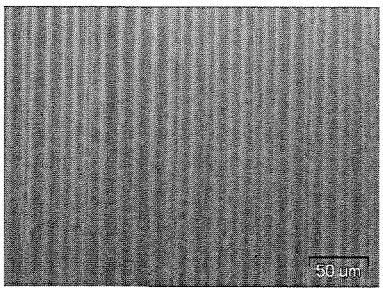


Fig. 10(b)

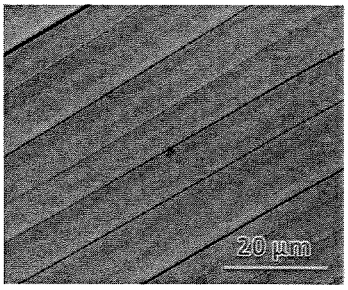
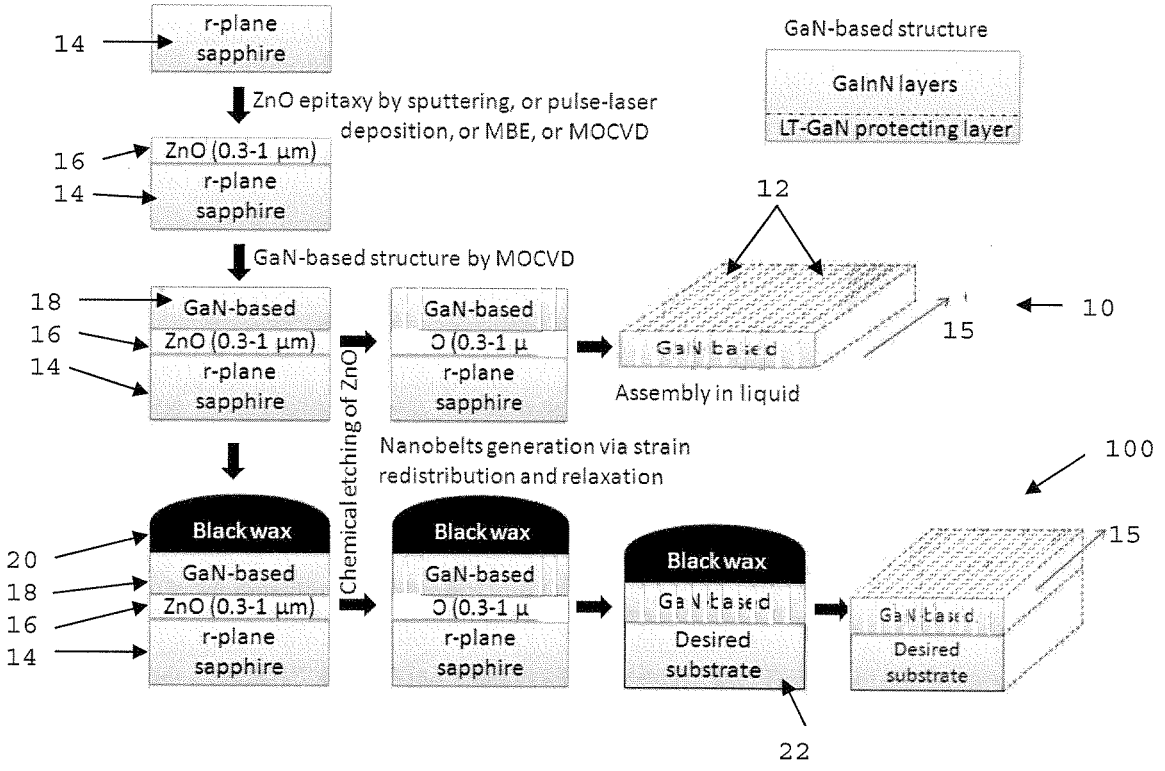


Fig. 10(c)


14
r-plane sapphire
ZnO epitaxy by sputtering, or pulse-laser deposition, or MBE, or MOCVD
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ZnO (0.3-1 μm)
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GaN-based structure by MOCVD
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Assembly in liquid
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Black wax
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16
r-plane sapphire
14
Black wax
GaN-based
O (0.3-1 μ
r-plane sapphire
Black wax
Desired substrate
22
Desired substrate

Fig. 1

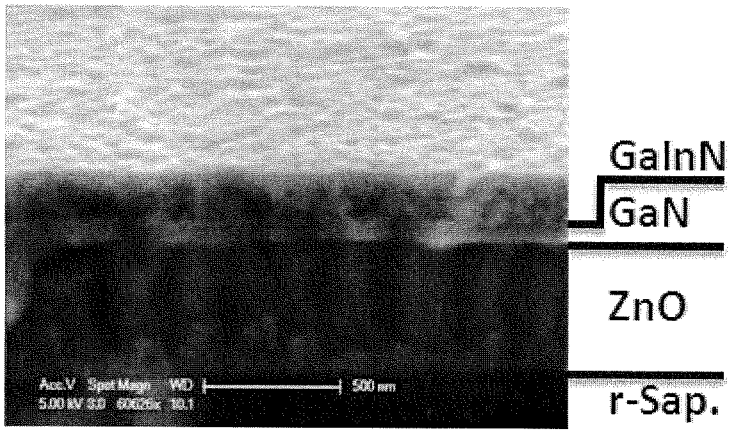

GaInN
GaN
ZnO
r-Sap.
500 nm

Fig. 2

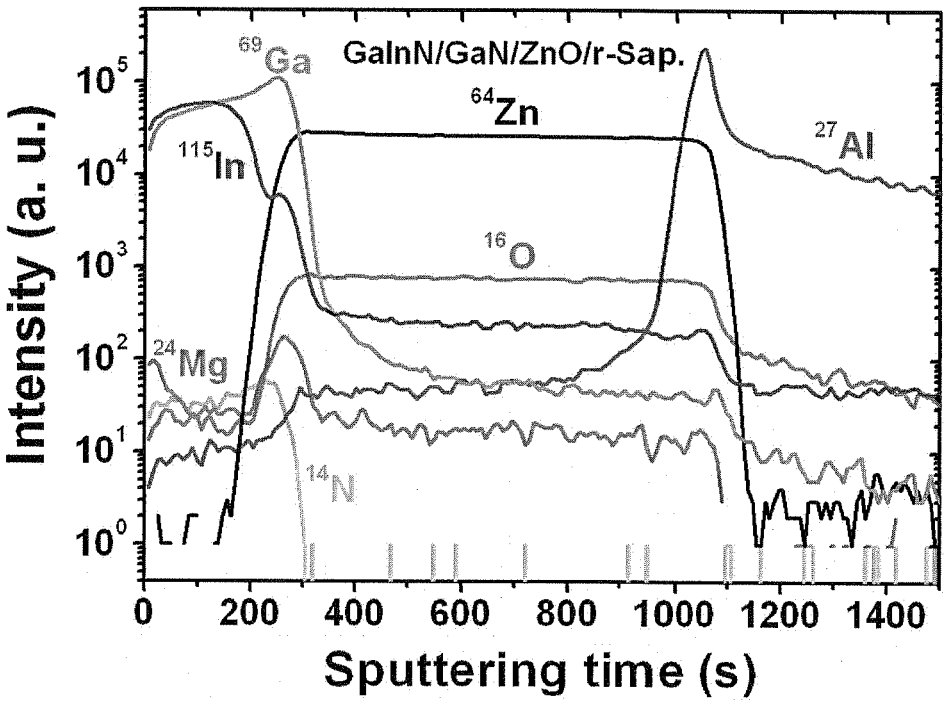


Fig. 3

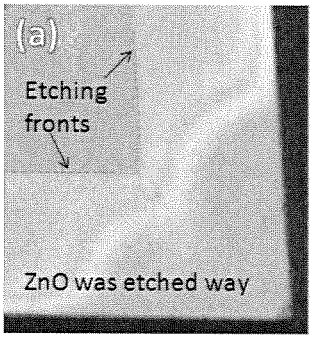


Fig. 4(a)

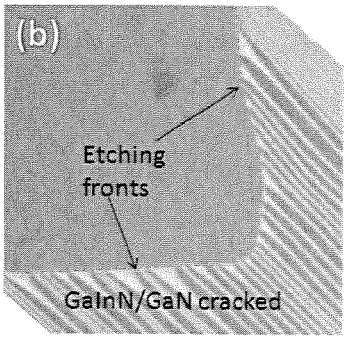


Fig. 4(b)

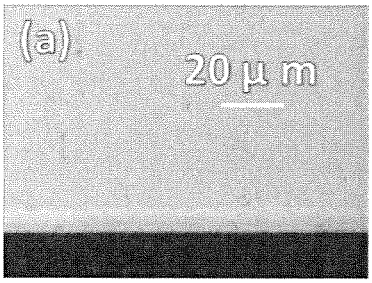
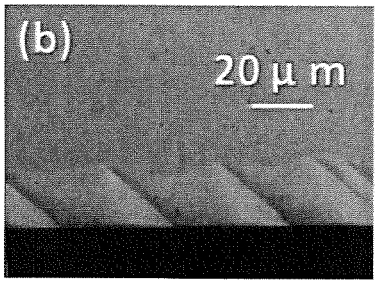


Fig. 5(a)



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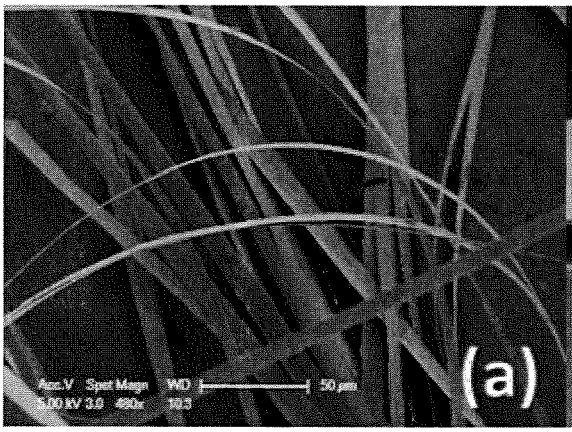


Fig. 6(a)

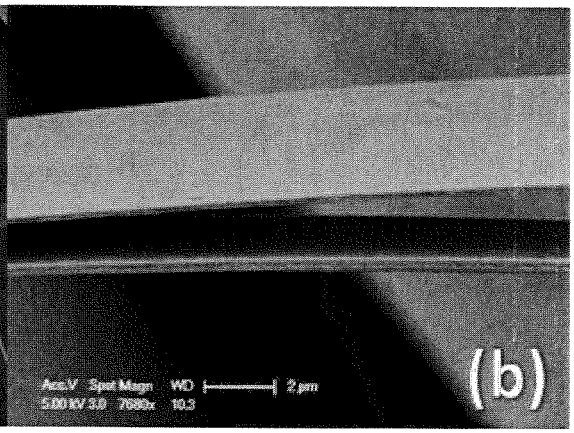
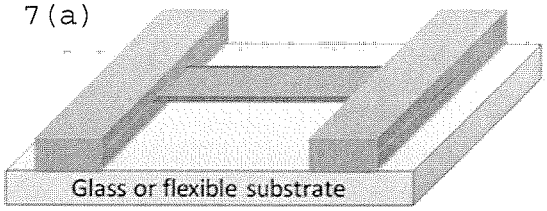


Fig. 6(b)

Fig. 7(a)



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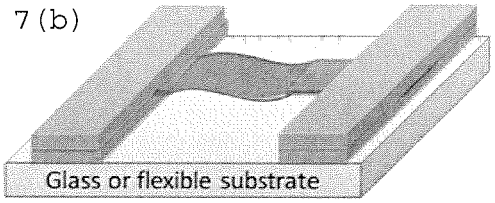
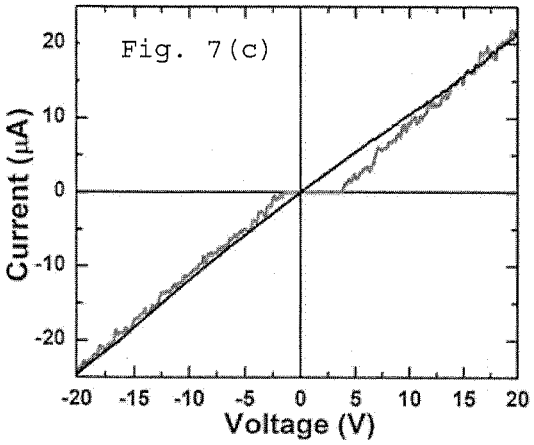


Fig. 7(c)



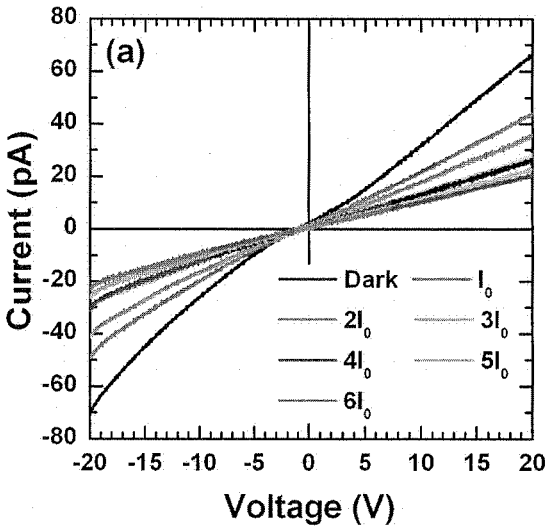


Fig. 8(a)

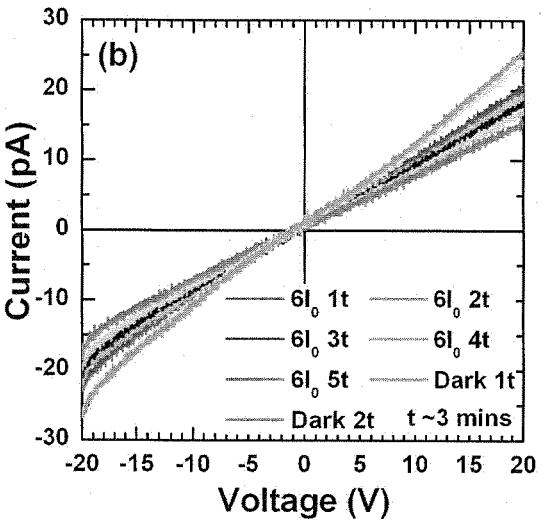


Fig. 8(b)

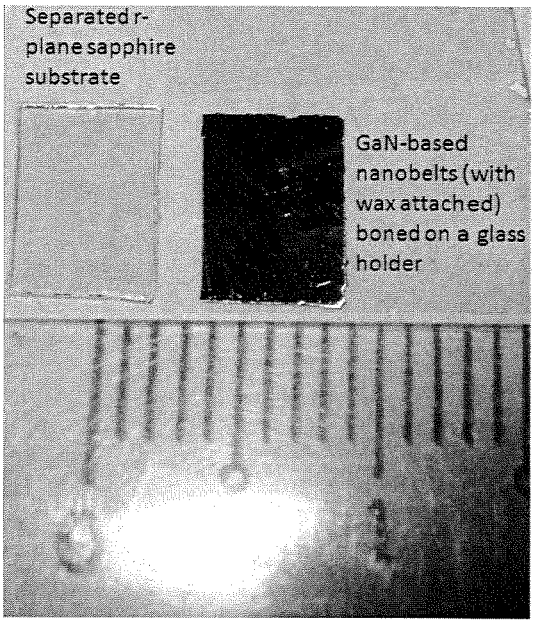


Fig. 9

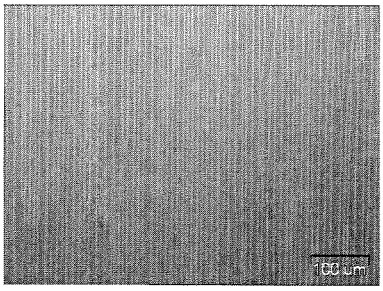
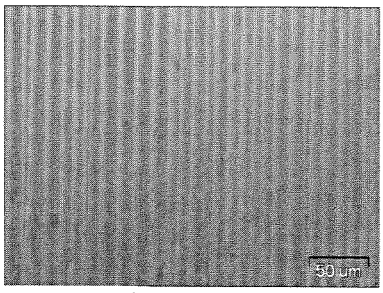


Fig. 10(a)



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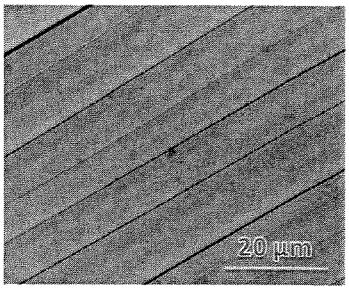

Fig. 10(c)