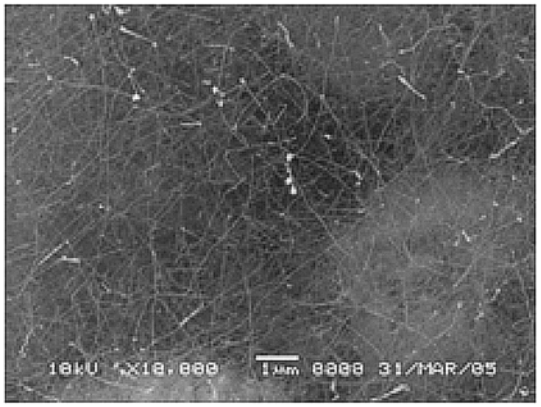
Vertically Aligned High Density GaN Nanowires with Ni Catalyst

SIGNIFICANT FINDINGS:

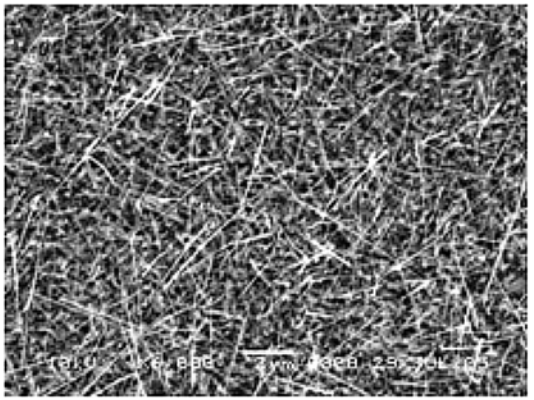
1. High density wires needed to increase the active volume of devices
2. Some important applications require highly ordered arrays of nanowires as well
3. Diameter of wires is about 20-50 nm and long up to 7 nm
4. GaN nanowires grown on Si substrate using 27 Å film as catalyst at 1000oC, NH3 flow rate 50 sccm for 10 min.
5. Magnesium Oxide (111) aid in the development of vertically aligned GaN nanowires ((111) plane of MgO has threefold symmetry and interatomic separation of 2.98 Å)

AUTHOR(S):

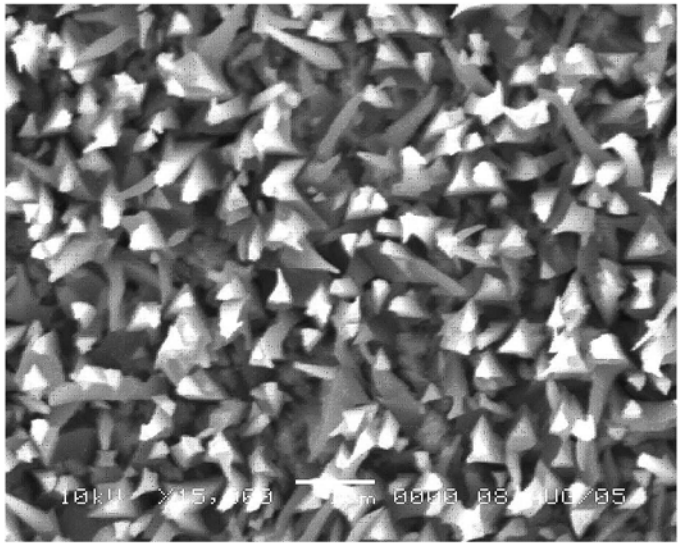
Dr. M. He - Howard Nanoscale Science and Engineering Facility (HNF)



GaN nanowires grown on Si substrate using 27 Å film as catalyst at 1000oC, NH3 flow rate 50 sccm for 10 min. diameter of wires is about 50-100 nm and 4-10 μm



High density with 10 Å film as catalyst



Vertically aligned with MgO (111) substrate