

### Supporting Information

Figure S1: Ni-catalyst assisted GaN NWs nanowires



**Table S1** : The x-ray diffraction peak positions and their corresponding full width half maximum (FWHM) of dominant (100), (002) and (101) planes of GaN NWs

GaN NWs	Ni-catalytic GaN NWs	Au-catalytic GaN NWs	Self-catalytic GaN NWs
GaN (100):			
Diffraction angle ( $2\theta$ )°	32.77	32.50	32.75
FWHM (°)	0.48	0.70	0.73
GaN (002):			
Diffraction angle ( $2\theta$ )°	34.93	34.63	34.59
FWHM (°)	0.54	1.14	1.17
GaN (101):			
Diffraction angle ( $2\theta$ )°	37.17	36.84	36.96
FWHM (°)	0.67	1.02	0.97