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Table 5.1 Comparative H₂ sensing properties of selected promising nanomaterials to that of values reported in this work.

Table 6.1 DNA protocols used in this study

Table 7.3 Raman band assignment of planktonic cells in the frequency range of 1000-2000 cm⁻¹

List of Abbreviation

1D - One Dimensional
3D - Three dimensional
AFM- Atomic Force Microscopy
BB- Blue band
CLRS- Confocal Micro-Raman Spectroscopy
CNT- Carbon Nanotubes
CVD- Chemical Vapor Deposition
DAP- Donor-Acceptor-Pair
DNA- Deoxyribonucleic Acid
p-DNA- Probe DNA
t-DNA- Target DNA
ct-DNA- Complementary Target DNA
sm-DNA- Single Mismatch DNA
EC- Escherichia coli
EDX- Energy Dispersive X-Ray Spectroscopy
EDC- Ethyl-3-(3-dimethylaminopropyl) carbodiimide
EFRS- Exposure Facility for Gas Sensor
EIS- Electrochemical Impedance Spectroscopy
FB- Free-to-Bound
FESEM- Field Emission Electron Microscopy
FFT- Fast Fourier Transform
FiB- Focused Ion Beam
G3-PAMAM- Third Generation Poly-(amidoamine)-Dendrimer
H1N1- Human Influenza A
HOMO- Highest Occupied Molecular Orbital
HOPG- Highly Ordered Pyrolytic Graphite
HRTEM- High Resolution Electron Microscopy
IDB- Inversion Domain Boundaries
IDP- Interface Dipole Layer
KPFM- Kelvin Probe Force Microscopy
LB- Luria Bertini
LED- Light Emiting Diode
LO- Longitudinal Optical
LUMO- Lowest Unoccupied Molecular Orbital
MBE- Molecular Beam Epitaxy
NBE- Near Band Edge
NP- Nanoparticle
NT- Nanotube
NW- Nanowire
OCP- Open Circuit Potential
PA- Pseudomonas aeruginosa
PA01-Pseudomonas aeruginosa
PL- Photoluminescence
Q- Constant Phase Element
RT- Room Temperature
R_p - Polarization Resistance
R_s - Solution Resistance
SA- Staphylococcus aureus
SAED- Selected Area Electron Diffraction
SERS- Surface Enhanced Raman Scattering
SMB- Stacking Mismatch Boundaries
SO- Surface Optical
SP- Surface Potential
TO- Transverse Optical
VLS- Vapor– Liquid–Solid
VS- Vapor-Solid
WZ- Wurtzite
YL- Yellow Luminescence
ZB- Zone Boundary