

List of Abbreviations

| <i>Abbreviation</i> | <i>Full form</i> |
|----------------------------------|--|
| A | Anatase |
| AFM | Atomic force microscopy |
| Ag | Silver |
| Al | Aluminium |
| AM | Air mass |
| B | Brookite |
| BE | Binding Energy |
| BET | Brunauer–Emmett–Teller |
| Bi | Bismuth |
| BJH | Barrett-Joyner-Halenda |
| C | Carbon |
| C ₂ H ₅ OH | Ethanol |
| Cd | Cadmium |
| Ce | Cerium |
| Cl | Chlorine |
| CNT | Carbon Nanotube |
| CO ₂ | Carbon Dioxide |
| Cu | Copper |
| D/W | Distilled Water |
| DI | Deionized Water |
| DSSC | Dye Sensitized Solar Cell |
| EDX | Energy-Dispersive X-Ray |
| EIS | Electrochemical Impedance Spectroscopy |
| Eu | Europium |
| F | Fluorine |
| Fe | Iron |
| FESEM | Field Emission Scanning Electron Microscope |
| FFT | Fast Fourier Transform |
| FTIR | Fourier Transform Infrared Spectroscopy |
| FTO | Fluorine Doped Tin Oxide |
| Gd | Gadolinium |
| h | Hours |
| H | Hydrogen |
| H | Hydrogen |
| H ₂ O | Water |
| HDA | Hexadecylamine |
| HCl | Hydrochloric Acid |
| HfO ₂ | Hafnium Oxide |
| HIP | Hafnium Isopropoxide |
| HOMO | Highest occupied molecular orbital |
| HRTEM | High-Resolution Transmission Electron Microscopy |
| I | Iodine |
| IR | Infra-red |
| JCPDS | Joint Committee on Powder Diffraction Standards |
| KCl | Potassium Chloride |
| La | Lanthanum |
| LSP | Localized surface plasmon |
| LUMO | Lowest unoccupied molecular orbital |
| min | Minutes |
| MWCNT | Muti-wall Carbon Nanotube |
| N719 | Ruthenizer 535-bis TBA |
| Nb | Niobium |
| Nd | Neodymium |
| NH ₃ | Nitric Acid |

| | |
|-------------------|------------------------------------|
| O | Oxygen |
| P25 | Titanium Dioxide (Degussa) |
| PCE | Photo conversion efficiency |
| PEG | Polyethylene Glycol |
| Pr | Praseodymium |
| Pt | Platinum |
| PV | Photovoltaic Cell |
| R | Rutile |
| RPM | Revolutions per minute |
| RT | Room temperature |
| S | Sulfur |
| SAED | Selected Area Electron Diffraction |
| Si | Silicon |
| Sm | Samarium |
| Sn | Tin |
| Sr | Strontium |
| T | Tera |
| Ta | Tantalum |
| TCO | Transparent conducting oxide |
| TEM | Transmission Electron Microscopy |
| Temp. | Temperature |
| Ti | Titanium |
| TiCl ₄ | Titanium Tetrachloride |
| TiO ₂ | Titanium Dioxide |
| TTIP | Titanium Tetraisopropoxide |
| UDM | Uniform Deformation Model |
| V | Vanadium |
| W | Watt |
| Wt | Weight |
| XPS | X-ray photoelectron spectroscopy |
| XRD | X-Ray Diffraction |
| ZnO | Zinc Oxide |
| Zr | Zirconium |

