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List of Abbreviations

Abbreviations	Names
1D	One dimensional
2D	Two dimensional
3D	Three dimensional
WCA	Water contact angle
CAH	Contact angle hysteresis
C-B	Cassie-Baxter
C-C	Cassie-Cassie
C-W	Cassie-Wenzel
W-C	Wenzel-Cassie
W-W	Wenzel-Wenzel
LR	Longitudinal ridge
CR	Cross rib
SEM	Scanning electron microscope
UV-Vis-NIR	Ultraviolet-Visible-Near infrared
WA	White Admiral
LW	Large White
DBT	Dark Blue Tiger
W rose	White rose
LP rose	Light pink rose
DP rose	Dark pink rose
p	Pitch
nm	nanometer

List of Symbols

Symbols	Meanings
γ_{LV}	Liquid-vapour surface tension
γ_{SL}	Solid-liquid surface tension
γ_{SV}	Solid-vapour surface tension
θ	Young's angle
φ	Water-solid fraction
r_{φ}	Roughness factor
θ_w	Wenzel angle
θ_C	C-B angle
θ_{CC}	C-C angle
θ_{CW}	C-W angle
θ_{WC}	W-C angle
θ_{WW}	W-W angle
φ_m	Solid-water fraction for micro-roughness
φ_n	Solid-water fraction for nano-roughness
r_m	Roughness factor for microstructure
r_n	Roughness factor for nanostructure
r_t	Transitional roughness
θ_{adv}	Advancing angle
θ_{rec}	Receding angle
α	Critical angle
β	Tilting angle
n_{eff}	Effective refractive index
Δn	Change in refractive index
μm	Micrometer
W_e	Ethanol-treated white rose
W_p	Propanol-treated white rose
W_g	Glycerine-treated white rose
LP_e	Ethanol-treated LP rose

LP_p	Propanol-treated LP rose
LP_g	Glycerine-treated LP rose
DP_e	Ethanol-treated DP rose
DP_p	Propanol-treated DP rose
DP_g	Glycerine-treated DP rose
R_0	Reflectance of perfectly smooth surface
r_μ	Root mean square deviation from mean surface level
$r_{\mu s}$	Average surface roughness associated with surface reflectance
$r_{\mu v}$	Sub-surface volume scattering
ϕ	Angle of incidence