

NOMENCLATURE

M	= local Mach number
α	= Angle of attack
C_L	= Lift coefficient
C_D	= Drag coefficient
L/D	= Lift/Drag ratio
M_{cr}	= Critical Mach number
M_{dd}	= Drag-divergence Mach number
β	= Wave angle (degree)
θ	= Flow deflection angle (degree)
ρ	= Flow density (kg/m^3)
p	= Pressure (N/m^2)
T	= Temperature (K)
V	= Flow velocity (m/sec)
M_1	= Mach number upstream of shock wave
P_1	= Pressure upstream of shock wave (N/m^2)
ρ_1	= Density upstream of shock wave (kg/m^3)
V_1	= Velocity upstream of shock wave (m/sec)
M_2	= Mach number downstream of shock wave
P_2	= Pressure downstream of shock wave (N/m^2)
ρ_2	= Density downstream of shock wave (kg/m^3)
V_2	= Velocity downstream of shock wave (m/sec)
M_n	= Mach number normal to shock wave
M_t	= Mach number tangential to shock wave
u	= x-component of velocity (m/sec)
v	= y-component of velocity (m/sec)

w	= z-component of velocity (m/sec)
e	= Internal energy ($\text{kg m}^2/\text{sec}^2$)
τ	= Shear stress (N/m^2)
\vec{F}_c	= Convective flux (W/m^2)
R	= Specific gas constant (J/K mol)
C_v	= Specific heat at constant volum (m^2/sec^2)
\bar{f}	= Time average quantity
r	= Leading edge and trailing radius (m)
i, j, k	= Average value of variable in cell i, j, k
μ_t	= Turbulent viscosity (kg/m sec)
u', v', w'	= Velocity fluctuations in x, y and z directions (m/sec)
y^+	= Non-dimensional distance from form the surface (m)
h	= Enthalpy ($\text{kg m}^2/\text{sec}^2 \text{ mol}$)
γ	= Ratio of specific heat
ϕ	= Shock reflection angle (degree)
μ	= Expansion waves angle (degree)
μ_1	= Angle of forward Mach line (degree)
μ_2	= Angle of rearward Mach line (degree)
ν	= Prandtl-Meyer function
c	= chord (m)
R	= Normal force component (N)
ϵ	= Semi Wedge angle (degree)
q	= Dynamic force (N)
n	= No. of parallel plates (m)
A_t	= Throat area (m^2)
A_i	= Inlet area (m^2)
t/c	= Thickness/chord ratio
A	= Aspect ratio (m)
Λ	= Wing sweep angle (degree)
t	= time (sec)

Ω	= Control volume
E	= Total energy ($\text{kg m}^2/\text{sec}^2$)
\vec{f}_e	= Body force (N)
$\bar{\tau}$	= viscous tensor stress (N/m^2)
\vec{F}_D	= diffusive flux ($\text{kg/m}^3 \text{ sec}^3$)
k	= thermal conductivity ($\text{kg m/sec}^3 \text{ K}$)
\dot{q}_h	= time rate of heat transfer per unit mass
Q_s	= surface sources
λ	= Second viscosity coefficient
μ	= Dynamic viscosity (kg/m sec)
\vec{F}_v	= Viscous flux
C_p	= Specific heat at constant pressure (J/kg K)
P_T	= Prandtl number
z	= Distance between biplane element (m)
x	= Stagger upper element distance (m)
$\vec{i}, \vec{j}, \vec{k}$	= Unit normal vectors in x, y and z directions
$d\Omega$	= Elemental volume
Re	= Reynold number