LIST OF SYMBOLS

\( a \) constant
\( b \) constant
\( C' \) concentration
\( C \) dimensionless concentration
\( D \) mass diffusion coefficient
\( Gc \) mass Grashof number
\( Gr \) thermal Grashof number
\( g \) acceleration due to gravity
\( j'' \) mass flux per unit area at the plate
\( K \) dimensionless chemical reaction parameter
\( K_i \) chemical reaction parameter
\( k \) thermal conductivity
\( L \) reference length
\( m \) exponent in the power law variation of the wall concentration
\( Nu \) dimensionless average Nusselt number
\( \overline{Nu}_L \) average Nusselt number
\( Nu_x \) dimensionless local Nusselt number
\( Nu_z \) local Nusselt number
\( n \) exponent in the power law variation of the wall temperature
\( Pr \) Prandtl number
\( p \) pressure
\( q \) heat flux per unit area at the plate
\( S \) specific volume of the fluid
\( Sc \) Schmidt number
\( \overline{Sh} \) dimensionless average Sherwood number
\( Sh_x \) dimensionless local Sherwood number
Sh̄ average Sherwood number
Shₓ local Sherwood number
T’ temperature
T dimensionless temperature
t’ time
t dimensionless time
U dimensionless velocity component in X-direction
uo velocity of the plate
u velocity component in x-direction
V dimensionless velocity component in Y-direction
v velocity component in y-direction
X dimensionless spatial coordinate along the plate
x spatial coordinate along the plate
Y dimensionless spatial coordinate normal to the plate
y spatial coordinate normal to the plate

Greek symbols

\( \alpha \) thermal diffusivity
\( \beta \) volumetric coefficient of thermal expansion
\( \beta^* \) volumetric coefficient of expansion with concentration
\( \eta \) similarity parameter
\( \mu \) dynamic viscosity
\( \nu \) kinematic viscosity
\( \bar{\tau} \) dimensionless average skin-friction
\( \bar{\tau}_x \) average skin-friction
\( \tau_x \) dimensionless local skin-friction
\( \tau_z \) local skin-friction
Subscripts

\( w \) conditions on the wall
\( \infty \) free stream conditions
\( i \) grid point along the \( X \)-direction
\( j \) grid point along the \( Y \)-direction