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**NOMENCLATURE**

| | |
|---|---|
| $A_n$ | Adomian polynomials |
| A | surface ($m^2$) |
| $C_P$ | Specific heat [J/Kg k] |
| $h^c$ | convective-exchange coefficient (W $m^{-2}$ $k^{-1}$) |
| $h^r$ | radiative-exchange coefficient (W $m^{-2}$ $k^{-1}$) |
| s | channel height (m) |
| S | solar intensity (w $m^{-2}$) |
| l | length of the collector (m) |
| $\dot{m}$ | mass flow (Kg.$s^{-1}$) |
| m | mass (kg) |
| Q | heat flow (w) |
| t | time (s) |
| T | temperature (°C) |
| w | width of the collector (m) |
| U | loss coefficient (W $m^{-2}$ $k^{-1}$) |
| D | hydraulic diameter |
| $L_i$ | Derivative operator |
| $L_i^{-1}$ | Inverse derivative operator |
| a | ambient |
| b | back plate |
| p | absorber plate |
| g | glass cover |
| in | insulator |
| p | absorber plate |
| th | thermal |
| p | top surface of the absorber plate |
| $R_g$ | gas constant J $kg^{-1}$ $K^{-1}$ |
| $\alpha_P$ | absorbance |
| $\eta_T$ | Theraml efficiency |
| $\tau$ | transmittance |
| $\lambda$ | thermal conductivity (W $m^{-1}$ $k^{-1}$) |
| $\alpha$ | Constant |
| $\delta$ | thickness,(m) |