بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

Flow of a fluid near a plate and its stability

Thesis

Submitted in partial fulfillment for rquirement of the Master Degree in Science (Applied Mathematics)

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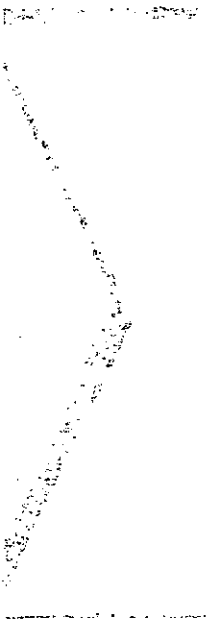

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List of Symbols

English Symbols

a_1, a_2	dimensionless of the wave numbers in x- and y- directions
a_{ij}	elements of the matrix
B	magnetic induction
C	concentration of the fluid
C_f	local skin friction, $\frac{2\tau_o}{\rho U^2}$
C_P	specific heat at constant pressure
D	mass diffusivity
d	maximum value of boundary layer thickness
E	electric field
E_C	Eckert number, $\frac{U^2}{C_p(T_o - T_\infty)}$
f	dimensionless stream function of velocity
g	acceleration due to the gravity
Gr(x)	Grashof number, $\frac{g\beta_T(T - T_\infty)x^3}{4\nu^2_\infty}$
H	magnetic field
H_1, H_2	Induced magnetic field components in x- and y- directions
J	current density
K	thermal diffusivity, $\frac{k}{\rho C_p}$
k	thermal conductivity
k_x , k_y	wave numbers in x- and y -directions
M	magnetic Prandtl number, $\frac{\nu}{\alpha_1}$
m″	rate of diffusion in y direction per unit area
N	buoyancy ratio , $\frac{\beta_C(C_o - C_\infty)}{\beta_T(T_o - T_\infty)}$,
Nu	Nusselt number
P	pressure of the fluid

Pr	Prandtl number, $\frac{\nu_\infty}{K_\infty}$
Q	involves the magnetic field, $\frac{\mu_m{}^2 H^2 \sigma d^2}{\nu \rho}$
Re	local Reynolds number, $\frac{Ux}{\nu}$
Rm	local magnetic Reynolds number, $\frac{Ux}{\alpha_1}$
S, uns	refer to the stable region and unstable
Sc	Schmidt number, $\frac{\nu_\infty}{D_\infty}$
Sh	Sherwood number
T	temperature of the fluid
t	time
U	free stream velocity
u , v	velocity components in x- and y- directions
x, y	coordinate system

Greek Litters

α, β_1, β_2	parameters depending on the nature of the fluid
α_1	magnetic diffusivity
α_2	reciprocal of the magnetic Prandtl number, $\frac{\alpha_1}{\nu}$
β	magnetic number, $\frac{\mu_m H^2}{\rho U^2}$
β_C, β_T	coefficients of the thermal and mass expansion
δ	boundary layer thickness
γ	dimensionless concentration
η	dimensionless distance from the plate
λ	buoyancy paramerer, $\frac{Gr(x)}{[Re(x)]^2}$
μ	coefficient of viscosity