

سامية محمد مصطفى



شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم



سامية محمد مصطفى



شبكة المعلومات الجامعية



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



سامية محمد مصطفى



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



سامية محمد مصطفى



شبكة المعلومات الجامعية



بعض الوثائق الأصلية تالفة



سامية محمد مصطفى



شبكة المعلومات الجامعية



بالرسالة صفحات لم ترد بالأصل





MENOUFIYA UNIVERSITY
FACULTY OF ENGINEERING - SHEBIN EL-KOM
BASIC SCIENCES DEPARTMENT

MOTION OF ELECTRICALLY CONDUCTING FLUIDS IN CIRCULAR CHANNELS

by

Islam Mohammad Ibrahim Eldesoky
Demonstrator, Faculty of Engineering, Menoufiya University

A proposal Submitted in partial fulfillment of the requirements
for Master Degree of Engineering
in

ENGINEERING MATHEMATICS

Supervised by

Prof. A. A. Megahed.
(Adel Megahed)
Physics and Eng. Math. Dept.
Faculty of Engineering
Cairo University

Dr. A. M. Abady.
(A. Abady)
Basic Sciences Department
Faculty of Eng. Shebin El-kom
Menoufiya University

Dr. B. M. Maher
(Bilal Maher)
Basic Sciences Department
Faculty of Eng. Shebin El-kom
Menoufiya University

2002

B

15V21

MENOUFIYA UNIVERSITY
FACULTY OF ENGINEERING-SHEBIN EL-KOM
BASIC SCIENCES DEPARTMENT

MOTION OF ELECTRICALLY CONDUCTING FLUIDS
IN CIRCULAR CHANNELS

by

Islam Mohamed Ibrahim Eldesoky
Demonstrator, Faculty of Engineering, Menoufiya University

A proposal Submitted in partial fulfillment of the requirements
for Master Degree of Engineering

in

ENGINEERING MATHEMATICS

Examiners Committee

Prof. K. A. Helmy

Professor of Applied Mathematics.
Faculty of Education, Alex. University.

(*Kam*)

Prof. A. F. ElHefnawy

Professor of Applied Mathematics.
Faculty of Science, Banha, Zagazig University.

(*A. F. ElHefnawy*)

Prof. A. A. Megahed

Professor of Engineering.Mechanics.
Faculty of Engineering, Cairo University.

(*A. Megahed*)

Department Head

(*G. I. M. Aly*)
Prof. G. I. M. Aly



2002

DEAN

(*S. A. Mahmoud*)
Prof. S. A. Mahmoud

CONTENTS

CONTENTS

ACKNOWLEDGMENTS

ABSTRACT

v

NOMENCLATURE

vi

viii

CHAPTER 1: GENERAL REVIEW

1.1 Introduction

1

1.2 Review of literature

3

1.3 Lay out of the problem

6

1.4 Some related definitions

7

1.5 Some important parameters and fundamental equations

8

CHAPTER 2: UNSTEADY MHD FLOW THROUGH POROUS MEDIUM IN CIRCULAR PIPES WITH CONSTANT PRESSURE GRADIENT

2.1 Introduction

14

2.2 Formulation of the problem

15

2.3 Method of solution

19

2.3.1 First approximation

22

2.3.2 Second approximation

23

2.4 Results and comments

25

2.5 Comparison between exact and approximate solution

27

CHAPTER 3: UNSTEADY MHD PULSATILE FLOW THROUGH POROUS MEDIUM IN CIRCULAR PIPES

3.1 Introduction	39
3.2 Formulation of the problem	39
3.3 Method of solution	42
3.3.1 First approximation	43
3.3.2 Second approximation	45
3.4 Results and comments	47

CHAPTER 4: UNSTEADY MHD PULSATILE FLOW THROUGH POROUS MEDIUM IN CIRCULAR PIPES UNDER THE EFFECT OF BODY ACCELERATION

4.1 Introduction	59
4.2 Formulation of the problem	59
4.3 Method of solution	63
4.3.1 First approximation	64
4.3.2 Second approximation	66
4.4 Results and comments	69

CONCLUSIONS	81
REFERENCES	84
APPENDIX	90
ARABIC SUMMERY	93

