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شبكة المعلومات الحامعية

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شبكة العلومات الحامعية



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم





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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسو

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شبكة المعلومات الحامعية



بالرسالة صفحات لم ترد بالأصل





Mathematics Department, Faculty of Science, Assiut University

Numerical Treatment of Some Problems for Heat and Fluids Flow through Porous Media

A THESIS

Submitted to Faculty of Science Assiut University
In Partial Fulfillment for
The Degree of Doctor of Philosophy of Mathematics

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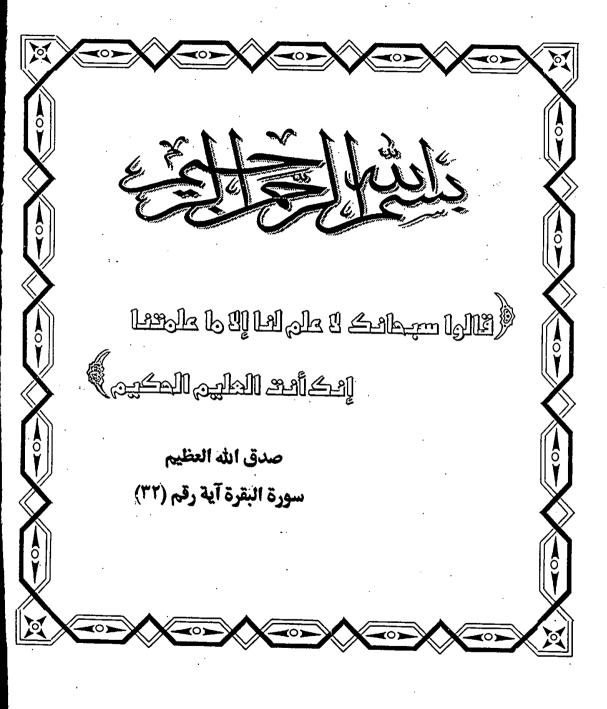
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To Memory of my Father



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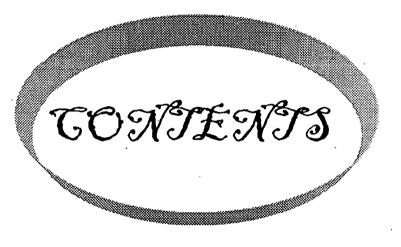
ABSTRACT

The study of heat and mass transfer during fluid flow through porous medium is of great interest for scientists and physicians. Many practical applications in petroleum industry, nuclear reactors, geophysics, agriculture and food industries need more investigations about thermal convection through saturated fluid in porous medium.

The present thesis deals with the study of heat and mass transfer for eight different problems of viscous incompressible fluid flow.

Different models of physical fluid properties have been treated in the Thesis. The fluid is assumed to be non-viscous, non-Newtonian or Newtonian. The porous surrounding medium is chosen to be either obeying Darcy's low or non-Darcian.

For each proposed physical problem, the basic equations have been deduced, and the corresponding boundary and initial condition are formulated. Hence numerical solutions are suggested and the calculated results are tabulated and represented in graphs.



Contents

Subject	Pag
Nomenclature	i
Caption of Figures	
List of Tables	x
Chapter 1 General Introduction	
1.1 Fluids flow through porous media	1
1.1.1 Darcy's law	1
1.1.2 Extensions of Darcy's law	2
1.1.2.1 Forchheimer model	3
1.1.2.2 Ergun model	4
1.1.2.3 Brinkman model	4
1.1.2.4 Ward model	5
1.1.2.5 Darcy-Forchheimer-Brinkman model	5
1.1.3 Darcy and non-Darcy models in non-Newtonian fluids	6
1.2.1 Literature review in non-Newtonian fluid in porous	
media	7
1.2.2 Literature review in convection flow in porous media	9
1.2.3 Literature review in melting in porous media	11
1.2.4 Literature review in unsteady convection in porous media	12
1.3 Basic equations in porous media	14
1.3.1 Continuity equation .	14
1.3.2 Momentum equation	14
1.3.3 Energy equation	15

3.2	Effect of Variable Permeability in Several Non-Darcian	
	Natural Convection Flows	79
	3.2.1 Introduction	79
	3.2.2 Analysis	81
	3.2.3 Results and discussion	86
Cha	apter 4	
4.1	Variable Permeability Effect on Melting from a Vertical	
	Plate Embedded in a Porous Medium in the Presence of	
	Steady Mixed convection	99
	4.1.1 Introduction	99
	4.1.2 Analysis	100
	4.1.3 Results and discussion	105
	4.1.4 Conclusions	106
4.2	Variable Permeability Effect on Melting from a	
	Horizontal Flat Plate Embedded in a Porous Medium in	
	the Presence of Steady Mixed Convection	116
	4.2.1 Introduction	116
	4.2.2 Analysis	118
	4.2.3 Results and discussion	122
	4.2.4 Conclusions	125
Cha	pter 5	
5.1	Variable Permeability Effect on Unsteady Free	
	Convection Fluid past a Vertical Plate through a Porous	
	Medium	135
	5.1.1 Introduction	135
	5.1.2 Analysis	136