Contents

1 Introduction 1
References 2

2 Preliminary Topics 3
2.1 Geometry of Structures Under Consideration 3
2.2 Moments of Functions 9
References 13

3 Hierarchical Models 15
3.1 Vekua's Hierarchical Models of the First Type for Elastic Prismatic Shells 15
3.2 Vekua's Hierarchical Models of the Second Type for Elastic Prismatic Shells 19
3.3 Hierarchical Models for Elastic Beams With Variable Rectangular Cross-Sections 21
3.4 Relation of Mathematical Moments and Fourier Coefficients 22
3.5 Bi-Modular Prismatic Rods 23
3.6 Hierarchical Models of the First Type for Fluids 25
3.7 Hierarchical Models of the Second Type for Fluids 28
3.8 Hierarchical Models for Elastic Solid–Fluid Structures 29
References 30

4 Cusped Shells and Plates 31
4.1 First Investigations: Fundamental Statement 31
4.2 Cusped Cylindrical and Conical Shells 36
4.3 Cusped Plates Bending 38
4.4 The *N*th Order Approximation 40
4.5 Internal Concentrated Contact Interactions in Cusped Prismatic Shell-Like Bodies 44
References 47

Bibliografische Informationen
http://d-nb.info/1012138992

digitalisiert durch DEUTSCHE NATIONAL BIBLIOTHEK

5 Cusped Beams 51
5.1 Cusped Euler–Bernoulli Beams 51
5.2 (N_3, N_2) Approximation 54
References 59

6 Relations of 3D, 2D, and 1D Problems 61
6.1 Boundary Conditions in Stresses 61
6.2 Boundary Conditions in Displacements 67
References 71

7 Cusped Prismatic Shell–Fluid Interaction Problems 73
References 74

Index 75