

# Hierarchical Models for Prismatic Shells with Mixed Conditions on Face Surfaces

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I. Vekua constructed [1] hierarchical models for elastic prismatic shells, in particular, plates, of variable thickness, when on the face surfaces either stresses (Model I) or displacements (Model II) are known. In the present paper other hierarchical models for cusped [2], in general, elastic prismatic shells are constructed and analyzed, when on the face surfaces (i) a normal to the projection of the prismatic shell component of a stress vector and parallel to the projection of the prismatic shell components of a displacement vector (Model III), (ii) a normal to the projection of the prismatic shell component of the displacement vector and parallel to the projection of the prismatic shell components of the stress vector are prescribed. Hierarchical Models we will call Model V and Model VI, when on the one face surface conditions (i) and on the other one conditions (ii) are known. Besides, we construct hierarchical model when on the upper face surface stress vector and on the lower face surface displacements (Model VII) and vice versa (Model VIII) are known. In the zero approximations of the models under consideration peculiarities (depending on sharpening geometry of the cusped edge) of correct setting boundary conditions at edges are investigated. In concrete cases some boundary value problems are solved in an explicit form.

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## References

- [1] I.N. Vekua, *Shell Theory: General Methods of Construction*. Pitman Advanced Publishing Program, Boston-London-Melbourne 1985.
- [2] G. Jaiani, *Cusped Shell-like Structures*. Springer, Heidelberg, Dordrecht, London, New York 2011.