

# SCHRÖDINGER EQUATION AND STRUCTURAL MECHANICS

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Exact formal equivalence between dynamics of evolution of a state of quantum nonrelativistic spinless particle described by Schrödinger equation, and dynamics of small flexural oscillations of some building structures is revealed. Already itself Schrödinger, as in one of his fundamental papers [1] and in one of his letters to G.A.Lorentz [2], hinted at existence of such equivalence. However he has not specified any details; moreover, more detailed consideration undertaken more than eighty years later by Christo Christov in his interesting but disputable work [3], concerns only the case  $U(\mathbf{x}) = \text{const}$ , where  $U$  is the potential energy in quantum-mechanical problem. In the present work the general case is investigated. In particular, the derived results demonstrate that some elastic building structures at correctly matched systems of forces acting on them can be considered as "analog computers", which solve Schrödinger equation.

## References

1. *Schrödinger E.* Quantisierung als Eigenwertprobleme // *Ann. Physik* **81**, 1926. 109–139
2. *Briefe zur Wellenmechanik.* – Wien, 1963
3. *Christov C.I.* The concept of a quasi-particle and the non-probabilistic interpretation of wave mechanics // *Mathematics and Computers in Simulation* **80**, 2009. 91–101