



## IV INTERNATIONAL BALTIC SYMPOSIUM ON APPLIED AND INDUSTRIAL MATHEMATICS

---

---

### REFERENCES

1. *Leontiev V.L., Mikhailov I.S.* About the building the potential of the atomic interaction based on orthogonal finite functions. — Nano- and Microsystem Technics, 2011, № 9, p. 48–50. (In Russian.)
2. *Leontiev V.L., Rikov E.A.* Integral transformations related to orthogonal finite functions in problems of spectral analysis of mathematical models of signals. — Math. Models Comput. Simul. / Mat. Model., 2006, v. 8, № 7, p. 93–100. (In Russian.)
3. *Leontiev V.L.* Orthogonal Finite Functions and Numerical Methods. Ulyanovsk: UISU, 2003, 178 p. (In Russian.)

UDC 539.142.2+519.63

*Leontiev V. L.* (Saint-Petersburg, Peter the Great St. Petersburg Polytechnic University). **Orthogonal splines in models and methods of nanomechanics.**

*Abstract:* The paper considers models and methods of nanomechanics related to the use of localization and orthogonality of splines. The application of the potential of interatomic interaction forces, integral transformations, and mixed numerical methods based on the properties of orthogonal splines increases the efficiency of modeling and spectral analysis of nanosystems, as well as the quality and accuracy of the analysis of the stress-strain state of nanosystems.

*Keywords:* Nanomechanics, models, orthogonal splines, spectral analysis, stress-strain state, mixed variational-grid method.

