

Periodic solutions of the Euler-Bernoulli equation vibrations of a beam subjected to compression, with mixed boundary conditions

24.06
12:00-12:30

Igor Rudakov

*Bauman Moscow State Technical University
Moscow Aviation Institute*

rudakov_ia@mail.ru

The report will consider the problem of periodic solutions of the quasi-linear Euler-Bernoulli equation of beam vibrations with boundary conditions corresponding to the case of rigidly closed left and pivotally supported right ends. For the corresponding Sturm-Liouville problem, asymptotic formulas for eigenfunctions and eigenvalues will be obtained. Based on the variational method, the theorems on the existence of periodic solutions are proved if the nonlinear term has more than linear growth. [JR23, Rud24].

- [JR23] S. Ji and I.A. Rudakov, *Infinitely many periodic solutions for the quasi-linear Euler–Bernoulli beam equation with fixed ends*, Calculus of Variations and Partial Differential Equations **62**:2 (2023), p. 66.
- [Rud24] I.A. Rudakov, *Periodic solutions of the Euler–Bernoulli quasilinear vibration equation for a beam with an elastically fixed end*, Mathematical Notes **115**:5 (2024), pp. 800–808.