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Oscillations of Shallow Shells at abrupt Influence of Thermal Flow

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On the basis of the closed integrals of the initial and boundary problems for incoherent thermoelasticity of shallow shells the quantitative analysis of influence of the geometrical parameters on the oscillations of constant rotation and cylindrical shells, which are conditioned by the thermal shock to outbound surface of shallow shell are carried out.

Key words: shallow shells, rotation, curvature, thermoelasticity, thermal shock.

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References

1. Ogibalov P. M., Griбанov V. F. *Termoustojchivost' plastin i obolochek* [Thermostability of plates and shells]. Moscow, Moscow Univ. Press, 1968, 520 p. (in Russian).
2. Kovalenko A. D. *Osnovy termouprugosti* [Fundamentals of thermoelasticity]. Kiev, Naukova Dumka, 1970, 303 p. (in Russian).
3. Belostochny G. N., Rassudov V. M. *Kolebaniya termouprugoj izotropnoj sistemy plastinka – rebra, podverzhennoj teplovomu udaru* [Oscillations of the thermoelastic isotropic system of plate-rib subjected to thermal bump]. Dep. in VINITI. № 87–82, 1981, 11 p. (in Russian)
4. Myltcina O. A., Belostochny G. N. Dinamika poverkhnosti progiba rebristoi plastinki pri mgnovennom vozdeistvii temperatury so storony okruzhaiushchei sredy [Dynamics of the surface of bending of the ribbed plate under instantaneous temperature bump from the environment]. *Dinamicheskie i tekhnologicheskie problemy mekhaniki konstruksii i sploshnykh sred : materialy XIX mezhdunarodnogo simpoziuma im. A. G. Gorshkova : v 2 t.* [Dynamic and technological problems of mechanics of continuum and structures : XX International symposium dedicated to Anatoly G. Gorshkov : in 2 vol.]. Moscow, OOO «TR-print», 2013, vol. 1. pp. 167–170 (in Russian).
5. Podstrigach Ia. S., Shvets R. N. *Termouprugost' tonkikh obolochek* [Thermoelasticity of thin shells]. Kiev, Naukova Dumka, 1978, 343 p. (in Russian).
6. Rassudov V. M., Krasiukov V. P., Pankratov N. D. *Nekotorye zadachi termouprugosti plastinok i pologikh obolochek* [Some problems of thermoelasticity of plates and sloping shells]. Saratov, Saratov Univ Press, 1973, 154 p. (in Russian).