1107-35-11 **Yuri A. Melnikov*** (yuri.melnikov@mtsu.edu), 1301 E. Main Street, Murfreesboro, TN 37132, and **Volodymyr Borodin** (vb2m@mtmail.mtsu.edu). *Green's functions for boundary-value problems simulating potential fields in regions of irregular configuration on surfaces of revolution.*

An intensive effort had been undertaken in recent decades on the construction of Green's functions and their incorporation into numerical schemes of the classical boundary integral equation method and its numerous modifications. Accumulated so far extensive database explicitly demonstrates computational potential of the already developed Green's-function-based numerical algorithms. In the present study, a specific class of boundary-value problems is targeted that simulate potential fields induced in thin-walled structures of irregular configuration. The latter represent either single thin shell fragments or assemblies of those made of homogeneous isotropic materials. Elements of the considered assemblies might be weakened with apertures. The targeted problems are tackled by the Green's function modification [2] of the functional equation method [1]. Required for that resolving Green's functions are analytically constructed prior to the actual computer work.

1. V.D. Kupradze and M.A. Aleksidze, The method of functional equations for the approximate solution of certain boundary-value problems, USSR CMMP, 4 (1964) 82-126; 2. Yu.A. Melnikov, Some applications of the Green's function method in mechanics, Int. J. of Solids and Structures, 13 (1977) 1045-1058. (Received November 11, 2014)