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Yuri A. Melnikov*, 519 Brandywine Drive, Murfreesboro, TN 37129, and **Volodymyr N. Borodin**. *Recover of missing data for boundary-value problems simulating potential fields in thin shell structures.*

A specific class of inverse problems is targeted aiming at the restoration of missing governing data in statements of boundary-value problems that simulate potentials fields induced in thin-walled structures of irregular configuration. The latter could represent either single shell fragments or assemblies of fragments each of which is made of a homogeneous isotropic conductive material. Fragments of considered assemblies might either be weakened with apertures or contain some inclusions made of foreign materials. The targeted inverse problems are treated by the method of successive approximations at each iteration of which a corresponding direct problem is tackled by a Green's function modification of one of the versions of the classical boundary integral equation method. Required for that Green's functions for governing differential equations are analytically constructed prior to the actual computer work. This creates a reliable background for fast and accurate solution of targeted inverse problems. (Received August 21, 2015)