

**NUMERICAL IMPLEMENTATION OF VOIGT AND MAXWELL MODELS
FOR SIMULATION OF WAVES IN THE GROUND**

A lot of papers have been dedicated to simulation of dynamic processes in soil and underground structures. For example, some authors considered wave distribution in underground water pipes for creation of vibration monitoring system, others considered theoretical and algorithm aspects of efficient implementation of realistic seismic wave attenuation due to viscosity development with the help of Finite Difference Method, etc.

The paper describes the numerical simulation, designed for simulation of the stress-strain state in the ground subjected to wave processes. We consider the ground with a concrete structure immersed in. The purpose of the work is the description of small vibrations in hard soil, which can nevertheless make undesirable impact on the objects in the ground or on the surface. Explicit Wilkins type scheme is used for time integration. It has proven to be successful, including the use in a well-known LS-DYNA code.

As a result we created our own computer code based on the finite element method (FEM). An example of its practical usage is given.

Key words: Voigt model, Maxwell model, Wilkins method, impact on the ground, modeling, finite elements, waves.

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Zakalyukina Irina Mikhaylovna — Candidate of Physical and Mathematical Sciences, Associate Professor, Department of Theoretical Mechanics and Aerodynamics, **Moscow State University of Civil Engineering (MGSU)**, 26 Yaroslavskoe shosse, Moscow, 129337, Russian Federation; +7 (499) 183-24-01; irina.zakalyukina@mail.ru;

Koval' Sergey Vsevolodovich — Doctor of Technical Science, Chief Research Worker, Department of Special Construction and Seismic Resistance, **26 Central Research Institute, branch of 31 State Project Institute of Special Building (31 SPISB)**, 19 Smolenskiy Bul'var, Moscow, 119121, Russian Federation; +7 (499) 241-2248; lavrik2811@yandex.ru.

For citation: Sheshenin S.V., Zakalyukina I.M., Koval' S.V. Chislennaya realizatsiya modeley Foygta i Maksvella dlya modelirovaniya voln v grunte [Numerical Implementation of Voigt And Maxwell Models for Simulation of Waves in the Ground]. *Vestnik MGSU* [Proceedings of Moscow State University of Civil Engineering]. 2014, no. 11, pp. 82—89. (In Russian).