1116-VC-2530 **Mihhail Berezovski*** (berezovm@erau.edu), 600 S. Clyde Morris Boulevard, Daytona Beach,, FL 32114. *Advanced study of wave propagation in dynamic materials.* Preliminary report.

The response of many materials of engineering interest to external loading is influenced by their microstructure. The components of such a microstructure may have different material properties, resulting in an enormous complexity in the response of a material. Results of numerical simulations by means of a thermodynamically consistent algorithm are demonstrated on examples of wave propagation. As a preliminary study to more complex situations of interest in small-scale technology, this study envisages the propagation properties of elastic waves in one-spatial dimension when some of the properties may vary suddenly in space or in time. We are interested in so-called dynamic materials (DM). Dynamic materials are artificially constructed structures (like metamaterials) which may vary their characteristic properties in space or in time, or both, by an appropriate arrangement or control. These controlled changes in time can be provided by the application of an external (non-mechanical) field, or through a phase transition. Such materials exhibit very unusual behavior. The special cases of non-instantaneous properties changing is studied. The wave propagation in 2D space geometry of DM is considered. (Received September 22, 2015)