About group velocity of electromagnetic wave in linear isotropic homogeneous medium MICHAEL GALINSKY, VLADIMIR RUMYANTSEV, STANISLAV FEDOROV, Donetsk Phys Tech Inst — Current works, devoted to changing of group velocity of laser pulses by spatial structuring laser beams, allow us to solve only direct problem – to define group velocity using information about wave structure. We propose a math model of wave propagation based on using real functions of spatial distributions of amplitude, phase and group velocity, which allows to solve as direct as inverse problem – to define spatial structure of beam using data about necessary group velocity [1]. Applying new model to experimental data from, for example, [2,3] shows high quality results. Practical applicability of our results are also can be in future confirmed in experiments with spatial light modulator. [1] M. K. Galinsky, V. V. Rumyantsev, Problems of Artificial Intelligence (ISSN: 2413-7383) 10, 14 (2018). [2] D. Giovannini et al., Science. 347, 857 (2015). [3] N. D. Bareza, N. Hermose, Sci. Rep. 6, 26842 (2016).

Michael Galinsky
Donetsk Phys Tech Inst

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