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Solutions of Maxwell equations for defining improvements of parallel computing with CUDA library

Maxwell equations are fundamental laws of physics for understanding electromagnetic fields. Their usage is essential in applications related to propagation of electromagnetic waves. To provide a numerical implementation of these equations, a Finite-Difference Time-Domain method can be used. It is crucial to optimize such complex calculations in order to provide convenient, time-saving tools. For this reason, two solutions to an example FDTD problem are devised which comprise of CUDA library for parallel computing on the GPU, and Julia as a programming language designed with the aim of handling such tasks. In addition to these, a similar CPU implementation is provided for comparison purposes.

Author: KONIECZNY, Maciej

Presenter: KONIECZNY, Maciej

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