

A dynamo simulation by finite element method

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Most of the simulations of Earth's dynamo were made, based on Chebyshev polynomial and spherical harmonic expansion. In this case, spatial resolution is controlled by the truncation level for Chebyshev polynomial and spherical harmonics. In order to make more accurate simulations, it is necessary to increase the truncation level. However, a severe defect arises; it takes much time, if the truncation level is increased.

Since, we apply the computation "finite element method" (FEM) in MHD dynamo simulations. Because 80 calculation is consumed in solving simultaneous equations, we solve them using "solver" which has been developed by Geo FEM. "Solver" is also effective in parallel computation for divided areas. We examine the validity of this method.