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Numerical Study for the MHD Homogeneous Decaying Turbulence with the Uniform Magnetic Field MASAYOSHI OKAMOTO, Department of the Mechanical Engineering, Shizuoka University — The MHD homogeneous decaying turbulent flows with the uniform magnetic field at three magnetic Prandtl numbers are investigated by means of the direct numerical simulation. The decay of the total energy, which is the sum of the kinetic and magnetic energy, is relaxed due to the additional magnetic field. The anisotropy of the Reynolds and Maxwell normal stresses is not large. However, in the power spectra of the velocity and magnetic fields the small-scale anisotropic property is under the influence of the constant magnetic field. From the viewpoints of the energy spectral budget, the contribution of the energy transformation term related with the mean magnetic field is dominant in comparison with that related with only fluctuating field.

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