Numerical Simulation of Drift Wave Turbulent in Magnetized Plasmas[1] NAOHIRO KASUYA, National Institute for Fusion Science, MASATOSHI YAGI, RIAM, Kyushu University, KIMITAKA ITOH, National Institute for Fusion Science, SANAE ITOH, RIAM, Kyushu University — Drift wave instability is one of the candidates to drive anomalous transport in toroidal plasmas. We have developed a 3- dimensional numerical simulation code called Numerical Linear Device (NLD), which models drift wave turbulence in a simple cylindrical plasma configuration. Using this code, turbulent structural formation mechanisms have been studied, and selective formation of the turbulent structures, zonal flow and streamer, has been clarified by changing a damping parameter of the zonal flow (ion-neutral collision frequency). We have been extending the model to include a toroidal effect. A model helical magnetic field is introduced in averaged reduced MHD equations to study the coupling between interchange modes and drift waves in helical plasmas. Simulation results for cylindrical plasmas and a progress of the extension will be reported.

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