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Modeling of two-dimensional transport in tokamak plasmas for integrated analysis of core and peripheral plasmas[1] H. SETO, A. FUKUYAMA, Department of Nuclear Engineering, Kyoto University, Sakyo-ku, Kyoto 606-8501, Japan — In order to describe the behavior of tokamak plasmas in both core and peripheral regions self-consistently, two-dimensional transport simulation is desirable and becoming feasible. We have formulated transport equations with poloidal-angle dependence from Braginskii equations for two-dimensional transport analysis. Following assumptions have been made to derive these equations; axisymmetry, MHD equilibrium, transport process much slower than the Alfvén velocity, and weak time dependence of basis vectors. The set of transport equations is composed of continuity equation, equation for velocity including the neoclassical viscosity, and equation of energy transport for each species. These equations are coupled with equations for electromagnetic field; Grad-Shaftranov equation, magnetic diffusion equation, and Poisson equation for electrostatic potential. Preliminary numerical results of two-dimensional transport analysis will be presented.

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