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abstract	This overview presents a tutorial introduction to the theory of magnetic plasma confinement in toroidal confinement systems with particular emphasis on axisymmetric equilibrium geometries, and tokamaks. The discussion covers three important aspects of plasma physics: Equilibrium, Stability, and Transport. The section on equilibrium will go through an introduction to ideal magnetohydrodynamics, curvilinear system of coordinates, flux coordinates, extensions to axisymmetric equilibrium, Grad-Shafranov Equation (GSE), Green's function formalism, as well as analytical and numerical solutions to GSE. The section on stability will address topics including Lyapunov Stability in nonlinear systems, energy principle, modal analysis, and simplifications for axisymmetric machines. The final section will consider transport in toroidal systems. We present the flux-surface-averaged system of equations describing classical and non-classical transport phenomena. Applications to the small-sized high-aspect-ratio Damavand tokamak will be described.	**abstract**	This overview presents a tutorial introduction to the theory of magnetic plasma confinement in toroidal confinement systems with particular emphasis on axisymmetric equilibrium geometries, and tokamaks. The discussion covers three important aspects of plasma physics: Equilibrium, Stability, and Transport. The section on equilibrium will go through an introduction to ideal magnetohydrodynamics, curvilinear system of coordinates, flux coordinates, extensions to axisymmetric equilibrium, Grad-Shafranov Equation (GSE), Green's function formalism, as well as analytical and numerical solutions to GSE. The section on stability will address topics including Lyapunov Stability in nonlinear systems, energy principle, modal analysis, and simplifications for axisymmetric machines. The final section will consider transport in toroidal systems. We present the flux-surface-averaged system of equations describing classical and non-classical transport phenomena. Applications to the small-sized high-aspect-ratio Damavand tokamak will be described.		
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