SMOOTH TRAJECTORIES ON TOROIDAL MANIFOLDS

S. S. Romanov

Institute of Plasma Electronic and New Methods of Acceleration, National Scientific Center
"Kharkov Institute of Physics and Technology", Kharkov, Ukraine

Great advance in plasma magnetic confinement theory is attained by means of trajectories investigation on toroidal manifolds. Since local and global aspects of qualitative trajectories flow are important at that, it is natural to consider such trajectories on smooth manifolds. It is succeeded by means of fixing the local metrics of a manifold to integrate equation for smooth trajectories, to find out connection between infinitesimal and topology trajectory properties, to write down equations of marked curves in evident form. Conditions are given, on which smooth trajectories will be either closed or compact on a manifold. Restrictions of topological invariances are found for loxodromies, for which a trajectory will be a plane curve.