

The main aim of this thesis is the analysis of different cosmological models from the standpoint of dynamical systems theory. We consider mostly spatially curved FLRW metric with different source terms, some of them possible candidates for dark matter and dark energy, particularly linear barotropic fluids, Chaplygin gas and canonical scalar field with exponential and general form of potential. We rewrite the cosmological equations as the system of the first order differential equations in dimensionless variables and study globally their phase space and the stability of the critical points. We also present few interesting features of models with interactions between two cosmic fluid constituents and mention dynamical properties of orthogonal Bianchi I models.