

Nambu mechanics is a generalization of Hamiltonian mechanics that uses multiple conserved quantities as Hamiltonians. In this thesis, we review Nambu mechanics and its application on the equations of incompressible flow and shallow water equations. The Nambu form of the equations of incompressible flow is guessed based on its Hamiltonian form and derived conserved quantities. With the example of the shallow water equations a more general method of Nambu form derivation is illustrated. Based only on the knowledge of the Hamiltonian and the potential enstrophy moments conservation, the shallow water equations are written as a sum of the Nambu brackets and a Poisson bracket. For the classical potential enstrophy, the derived equations are up to constant factors equivalent to the known form of the shallow water equations. The notation by antisymmetric Nambu brackets is convenient for finding conservative schemes and the theory can be also used for example for the study of deviations of flow from stationary flow.