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Applications of the ortogonal degree to the problem of bifurcation in Hamiltonian dynamical systems

We investigate the bifurcation of periodic solutions from relative equilibria, examples being the n body problem or the n vortex problem. We use the approach of orthogonal degree theory, which lets us probe the existence of global symmetric branches of periodic solutions. We particularly report a general result of bifurcation on the equation of a satellite influenced by a relative equilibria of primaries. We will discuss further the case in which the primaries form a $1+n$-gon, like the Maxwell model for the Saturn rings. We also discuss the case of Halo orbits in the restricted tree body problem.