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Thesis Title	*The spiral structure of the galaxies, invariant manifolds and chaos in the corrotation region*
Supervisor	C. Efthymiopoulos, Research director, Academy of Athens
Summary	The subject of the present master thesis is the theory of invariant manifolds for the problem of the spiral structure of the galaxies. We compute the invariant manifolds that are derived of the periodic orbits of the unstable Lagrangian equilibrium points of the galaxy. We prove that the invariant manifolds support well the spiral arms and the outer limits of the bar of the galaxy. For the model of our Galaxy we produce the invariants manifolds both in the phase space and the physical space. We try to examine what structures of invariant manifolds we have, if we change some parameters in the model of our Galaxy. We compare these structures and we try to examine which are the best parametres for our model.
Key words	Spiral structure, chaos, invariant manifolds
Evaluation committee	C. Efthymiopoulos, Research director, Academy of Athens P. Ioannou, Professor F. Diakonos, Associate Professor