A convergence result for mountain pass periodic solutions of perturbed Hamiltonian systems

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The lecture is based on the work [2], where we study second order Hamiltonian systems under small perturbations. We assume that the main term of the system has a mountain pass structure, but do not suppose any condition on the perturbation. We prove the existence of a periodic solution. Moreover, we show that periodic solutions of perturbed systems converge to periodic solutions of the unperturbed systems if the perturbation tends to zero. The assumption on the potential that guarantees the mountain pass geometry of the corresponding action functional is of independent interest as it is more general than those by Rabinowitz [3] and the authors [1].

References

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