APPLICATIONS OF HAMILTONIAN SYSTEMS IN ANALYSIS AND OPTIMIZATION[*]

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Dedicated to Professor Mihail Megan
on the occasion of his 70th anniversary

Abstract

In this paper we present a short description of the PhD thesis with the title "Applications of Hamiltonian systems in analysis and optimization". This thesis was defended on November 2-nd 2017 at the Institute of Mathematics "Simion Stoilow" of the Romanian Academy.

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keywords: Implicit function theorem, implicit systems, differential equations, local parametrization, generalized solution, critical case, approximation, constrained optimization, numerical experiments.

1 Preliminary notions about implicit systems

Implicit functions represent a classical subject, still very studied. One of the first references that includes the modern formulation of the theorem is Dini, 1878, [9].