



Mathematics > Differential Geometry

Integrable Hamiltonian systems with incomplete flows and Newton's polygons

Elena A. Kudryavtseva, Timur A. Lepsky

(Submitted on 11 Jul 2011 (v1), last revised 20 Sep 2011 (this version, v2))

We study the Hamiltonian vector field $v = (-\partial f / \partial w, \partial f / \partial z)$ on \mathbb{C}^2 , where $f = f(z, w)$ is a polynomial in two complex variables, which is non-degenerate with respect to its Newton's polygon. We introduce coordinates in four-dimensional neighbourhoods of the "points at infinity", in which the function $f(z, w)$ and the 2-form $dz \wedge dw$ have a canonical form. A compactification of a four-dimensional neighbourhood of the non-singular level set $T_0 = f^{-1}(0)$ of f is constructed. The singularity types of the vector field $v|_{T_0}$ at the "points at infinity" in terms of Newton's polygon are determined.

Comments: 14 pages, 6 figures, in Russian, Proceedings of International Conference "Metric geometry of surfaces and polytopes" (Moscow, Aug. 2010)

Subjects: **Differential Geometry (math.DG)**; Dynamical Systems (math.DS); Geometric Topology (math.GT)

MSC classes: 37J05, 37J35

Journal reference: Contemp. Probl. Math. Mech. VI (2011), N.3, 42-55, Moscow Univ. Publ., 2011

Cite as: **arXiv:1107.1911 [math.DG]**
(or **arXiv:1107.1911v2 [math.DG]** for this version)

Submission history

From: Elena Kudryavtseva [[view email](#)]
[\[v1\]](#) Mon, 11 Jul 2011 00:05:51 GMT (164kb,D)
[\[v2\]](#) Tue, 20 Sep 2011 19:59:56 GMT (163kb,D)

[Which authors of this paper are endorsers?](#)

Link back to: [arXiv](#), [form interface](#), [contact](#).

Download:

- [PDF](#)
- [Other formats](#)

Current browse context:

math.DG

[< prev](#) | [next >](#)

[new](#) | [recent](#) | [1107](#)

Change to browse by:

math

[math.DS](#)

[math.GT](#)

References & Citations

- [NASA ADS](#)

Bookmark ([what is this?](#))

