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REFERENCES

- [A1] ARNOLD, V.I. Small denominators and problems of stability of motion in classical and celestial mechanics. *Russian Math. Surveys* 18, 6 (1963), 85-191.
- [A2] ——— Lagrange and Legendre cobordisms I and II. *Functional Anal. Appl.* 14 (1980), 167-177 and 252-260.
- [A3] ——— Lagrangian manifolds with singularities, asymptotic rays and the open swallowtail. *Functional Anal. Appl.* 15 (1981), 235-246.
- [A4] ——— Evolution of singularities of potential flows in collision-free media and caustics metamorphosae in 3-space. *Trudy Semin. im. I.G. Petrovskogo* 8 (1982), 21-57. (English translation: *J. Sov. Math.* 32 (1986), 229-258).
- [A5] ——— Singularities of Legendre varieties, of evolvents and of fronts at an obstacle. *Ergodic Theory and Dynam. Syst.* 2 (1982), 301-309.
- [A6] ——— Singularities in the calculus of variations. *Itogi Nauki Tekh., Ser. Sovrem. Probl. Mat., VINITI, Moscow*, 22 (1983), 3-55 (English translation: *J. Sov. Math.* 27 (1984), 2679-2713).
- [A7] ——— Remarks on the quasicrystalline symmetries. *Physica D*, 33 (1988), 21-25.
- [A8] ——— On surfaces defined by hyperbolic equations. *Matem. Zametki* 44, 1 (1988), 3-18 (English translation: *Math. Notes* 44 (1988)).
- [A9] ——— On the interior scattering of waves defined by hyperbolic variational principles. *J. of Geometry and Physics*, 1989.
- [AGV] ARNOLD, V.I., S.M. GUSEIN-ZADE and A.N. VARCHENKO. *Singularities of differentiable maps*, I and II (in Russian). Nauka, Moscow, 1982 and 1984. English translation: Birkhäuser, Boston, 1985 and 1988.
- [Co] CONN, Jack F. Normal forms for analytic Poisson structures. *Annals of Math.* 119 (1984), 577-601.
- [E1] ELIASHBERG, J. Cobordisme des solutions de relations différentielles. *Séminaire Sud-Rhodanien de Géométrie I*, Travaux en cours, Paris, Hermann, 1984, 17-31.
- [G1] GIVENTAL, A. B. Manifolds of polynomials having a root of fixed multiplicity, and the generalized Newton equation. *Functional Anal. Appl.* 16 (1982), 10-14.
- [G2] ——— *Itogi Nauki Tekh., Ser. Sovrem. Probl. Mat., VINITI, Moscow*, 33 (1988). (English translation: *J. Sov. Mat.*)
- [GV] GIVENTAL, A.B. and A.N. VARCHENKO. Mapping of periods and intersection form. *Functional Anal. Appl.* 16 (1982), 83-93.
- [Ka] KAZARJAN, M. *Itogi Nauki Tekh., Ser. Sovrem. Probl. Mat., VINITI, Moscow*, 33 (1988). (English translation: *J. Sov. Math.*)
- [Ki] KIRILLOV, A. A Local Lie algebras. *Russian Math. Surveys* 31, 4 (1976), 55-75.
- [La] LANDIS, E.E. Tangential singularities. *Functional Anal. Appl.* 15 (1981), 103-114.
- [Ly] LYASHKO, O.V. Classification of critical points of functions on a manifold with singular boundary. *Functional Anal. Appl.* 17 (1983), 187-193.
- [Ma] MARTINET, Jean. Sur les singularités des formes différentielles. *Ann. Inst. Fourier* 20, 1 (1970), 95-178.

- [Me] MELROSE, R.B. Equivalence of glancing hypersurfaces, II. *Math. Ann.* 255 (1981), 159-198.
- [Sh1] SHCHERBAK, O.P. Projectively dual space curves and Legendre singularities. *Trudy Tbiliss. Univ.* 232-233 (1982), 280-336. (English translation: *Sel. Math. Sov.* 5 (1986), 391-421.)
- [Sh2] ——— Singularities of families of involvents in the neighbourhood of an inflection point of the curve, and the group H_3 generated by reflections. *Functional Anal. Appl.* 17 (1983), 301-303.
- [Sh3] ——— Wavefronts and reflection groups. *Russian Math. Surveys* 43, 3 (1988), 149-194.
- [VC] VARCHENKO, A.N. and CHMUTOV, S.V. Finite irreducible groups, generated by reflections, are monodromy groups of suitable singularities. *Functional Anal. Appl.* 18 (1984), 171-183.
- [Va] VASSILYEV, V.A. *Lagrange and Legendre characteristic classes*. Gordon and Breach. 1988.

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