Preface

Vladimir Igorevich Arnold is one of the most influential mathematicians of our era. Arnold launched several mathematical domains (such as modern geometric mechanics, symplectic topology, and topological fluid dynamics) and contributed, in a fundamental way, to the foundations and methods in many subjects, from ordinary differential equations and celestial mechanics to singularity theory and real algebraic geometry. Even a quick look at a (certainly incomplete) list of notions and results named after Arnold is telling:

- KAM (Kolmogorov–Arnold–Moser) theory
- The Arnold conjectures in symplectic topology
- The Hilbert–Arnold problem for the number of zeros of abelian integrals
- Arnold's inequality, comparison, and complexification method in real algebraic geometry
- Arnold–Kolmogorov solution of Hilbert's 13th problem
- Arnold's spectral sequence in singularity theory
- Arnold diffusion
- The Euler–Poincaré–Arnold equations for geodesics on Lie groups
- Arnold's stability criterion in hydrodynamics
- ABC (Arnold–Beltrami–Childress) flows in fluid dynamics
- Arnold–Korkina dynamo
- Arnold's cat map
- The Liouville–Arnold theorem in integrable systems
- Arnold's continued fractions
- Arnold's interpretation of the Maslov index
- Arnold's relation in cohomology of braid groups
- Arnold tongues in bifurcation theory
- The Jordan–Arnold normal forms for families of matrices
- Arnold's invariants of plane curves

Arnold wrote several hundreds of papers, and many books, including 10 university textbooks. He is known for his lucid writing style which combines mathematical rigor with physical and geometric intuition. Arnold's books *Ordinary Differential Equations* and *Mathematical Methods of Classical Mechanics* have become mathematical bestsellers and integral parts of the mathematical education throughout the world.

Here is a brief biography and a list of distinctions of V. I. Arnold.[1]

V. I. Arnold was born on June 12, 1937, in Odessa, USSR. The family lived in Moscow, and Arnold graduated from the Moscow school #59. Later in life, on

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[1] Adapted from Arnold's own CV, the Preface to his "Collected Works", Springer, 2009, and the website of the MCCME.

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