

Biographical Sketch and Some Publications of the Author Relevant to Invariant Integrals in Physics

G.P. Cherepanov, Some new applications of the invariant integrals of mechanics. *J. Appl. Math. Mech.*, **76**(5), 519–536 (2012); Crack propagation in continuous media. *J. Appl. Math. Mech.* **31**(3), 503–512 (1967); Invariant Γ -integrals and some of their applications. *J. Appl. Math. Mech.*, **41**(3), 475–493 (1977); Invariant Γ -integrals. *J. Engng Fract. Mech.* **14**(1), 3–25 (1981); Invariant integrals in continuum mechanics. *Soviet Appl. Mech.* **26**(7), 3–16 (1990); The invariant integral of physical mesomechanics as the foundation of mathematical physics: some applications to cosmology, electrodynamics, mechanics and geophysics. *Phys. Mesomech.* **18**(3), 203–212 (2015); Invariant integrals: from Euler and Eshelby to most recent application, in *Advances in Mathematics Research* (Nova Publ., 2018), pp. 1–21.

G.P. Cherepanov, A.A. Borzyh, Theory of the electron fracture mode in solids. *J. Appl. Phys.* **74**(12), 7134–7154 (1993).

G.P. Cherepanov, Rolling: an introduction to tribology, in *Advances in Tribology Research* (Nova Publ., 2018), pp. 1–32.

G.P. Cherepanov, On a non-linear problem in the theory of analytical functions. *Dokl. USSR Acad. Sci. (Math.)*, **147**(3), 566–568 (1962).

G.P. Cherepanov, Stresses in an inhomogeneous plate with cracks. *Notices USSR Acad. Sci. (Mech.)*, **1**, 131–138 (1962) (in Russian).

G.P. Cherepanov, On a method of solution of elastic-plastic problems. *J. Appl. Math. Mech.* **27**(3), 428–435 (1963).

G.P. Cherepanov, The Riemann-Hilbert problem for cuts along a straight line or circumference, *Dokl. USSR Acad. Sci. (Math.)*, **156**(2), 275–277 (1964).

G.P. Cherepanov, Boundary value problems with analytical coefficients. *Dokl. USSR Acad. Sci. (Math.)*, **161**(2), 312–314 (1965).

G.P. Cherepanov, Some problems with unknown boundaries in the theory of elasticity and plasticity, in *Applications of the Theory of Functions in Continuum Mechanics*, vol 1 (Nauka Publ., Moscow, 1965), pp 135–150 (in Russian).

G.P. Cherepanov, On the problem of non-uniqueness in the theory of plasticity. *Dokl. USSR Acad. Sci.* **218**(4), 1124–1126 (1974).

G.P. Cherepanov, *Mechanics of Brittle Fracture* (McGraw Hill, New York, 1978), 950pp.

G.P. Cherepanov, *Fracture Mechanics* (ICR Publ., Moscow, 2012), 872pp (in Russian).

G.P. Cherepanov, *Methods of Fracture Mechanics: Solid Matter Physics*, (Kluwer, Dordrecht, 1997), 300pp.

G.P. Cherepanov, Theory of rolling: solution of the Coulomb problem. *J. of Appl. Mech. and Tech. Physics*, **55**(1), 182–189 (2014).

G.P. Cherepanov, Contact problem of the theory of elasticity with stick-and-slip zones, with application to the theory of rolling and tribology. *J. Appl. Math. Mech.*, **79**(1), 112–143 (2015).

L.A. Galin, G.P. Cherepanov, Contact elastic-plastic problem for plates. *Dokl. USSR Acad. Sci. (Mech.)* **177**(1), 56–58 (1967).

Biographical Sketch

Affiliation: The New York Academy of Sciences, New York, USA.

A Honorary Life Member elected on Dec. 8, 1976 together with Linus Pauling and George Polia.

Education: BS from the Moscow Institute of Physics and Technology (1960), Ph.D. from the Moscow State University (1962), Dr. Sci. in Physics and Mathematics from the USSR Academy of Sciences (1964), Full Professor of Mathematics certified by the USSR Highest Commission (1970).

Research and Professional Experience: More than 300 refereed papers in two dozens of the American and Russian journals on physics, mechanics and applied mathematics from 1960 to 2018. Many monographs and textbooks on mechanics and physics.

Professional Appointments: Senior Scientist, the Institute of Mechanics, the USSR Academy of Sciences; Full Professor of Mathematics, the Moscow Mining Academy; Head of Laboratory, the Pacific Ocean Studies Institute, the USSR Academy of Sciences; Distinguished Research Associate, Harvard University; and Professor of Mechanical Engineering, Florida International University. Retired since 2000.

Honors: Lenin Komsomol Prize (1972), Fulbright Prize (2000).

Some Publications for last 3 years:

G.P. Cherepanov, *Phys. Mesomech.* **18**(2), 174–178 (2015); **18**(3), 203–212 (2015); **18**(4), 391–401 (2015); **19**(1), 1–5 (2016); **19**(4), 365–377 (2016); **20**(2), 115–124, (2017).

G.P. Cherepanov, *Philosophical Transactions A* **373**, the Royal Society, pp 1–13. 20140119.

G.P. Cherepanov, *J. Appl. Math. Mech.* **79**(1), 112–143 (2015).

G.P. Cherepanov, A neoclassic approach to cosmology based on the invariant integral, Chapter 1, in *Horizons in World Physics*, vol 88 (Nova, New York, 2017), pp. 1–30. Gena Cher (G.P. Cherepanov's pseudonym), *Poems of Ancient Egypt* (in Russian and English), (Ridero, 2017), pp. 1–440.