

## Yuri V. Petrov - Selected publications

1. Shixiang Zhao, Yu.V. Petrov, G.A. Volkov (2023) The modified relaxation plasticity model and the non-monotonic stress–strain diagram. *Int J of Mechanical Sciences*. Vol.240, 2023, 107919  
<https://www.sciencedirect.com/science/article/abs/pii/S0020740322007974?via%3Dihub> <https://authors.elsevier.com/c/1g7zY4jpxXfkc>
2. M.O.Ignatiev, Y.V.Petrov, N.A.Kazarinov (2022) Peridynamic formulation of the mean stress and incubation time fracture criteria and its correspondence to the classical Griffith's approach. *Continuum Mechanics and Thermodynamics*. In press DOI : 10.1007/s00161-022-01159-8 <https://www.springerprofessional.de/en/peridynamic-formulation-of-the-mean-stress-and-incubation-time-f/23844548>
3. N.V. Mikhailova, I.V. Smirnov, V.V. Balandin, V.Vl. Balandin, A.M. Bragov, Yu.V. Petrov (2022) The spall failure delay: Experimental observation and theoretical analysis *International Journal of Impact Engineering* 164 (2022) 104194  
<https://doi.org/10.1016/j.ijimpeng.2022.104194>
4. N. S. Selyutina, Y. V. Petrov (2022) Instabilities of Dynamic Strain Diagrams Predicted by the Relaxation Model of Plasticity. *Journal of Dynamic Behavior of Materials* (2022) 8:304–315 <https://doi.org/10.1007/s40870-022-00334-x>
5. Yu. V. Petrov, A. A. Utkin. Failure-Delay (2022) Failure-Delay Effect under Influence Pulse Dynamic Loads. *Mechanics of Solids*, 2022, Vol. 57, No. 1, pp. 75–85  
<https://link.springer.com/article/10.3103/S0025654422010125>
6. N. Selyutina, Y. Petrov (2022) Structural-Temporal Peculiarities of Dynamic Deformation of Layered Materials. *Materials* 2022, 15, 4271.  
<https://doi.org/10.3390/ma15124271>
7. Y. Petrov, N. Kazarinov, A. Utkin (2022) Dynamic effects and an oscillator model of a spatio-temporal representative volume describing fracture process at the crack. *Procedia Structural Integrity* Volume 39, 2022, Pages 552-559  
<https://www.sciencedirect.com/science/article/pii/S2452321622003419>
8. Yuri Petrov, Nikita Kazarinov, Alexandr Utkin. Analogy between crack initiation due to dynamic pulse load and mass-spring system failure: fracture delay effect. *Procedia Structural Integrity* 42 (2022) 1040–1045 <https://doi.org/10.1016/j.prostr.2022.12.131>  
<https://www.sciencedirect.com/science/article/pii/S2452321622006886>
9. S. Zhao, Yu. V. Petrov, G. A. Volkov (2022) Modeling the Nonmonotonic Behavior Flow Curves under Dynamic Loads. *Physical Mesomechanics*. 2022. V.25, P. 221–226  
<https://link.springer.com/article/10.1134/S1029959922030031>
10. N. Selyutina, E. Borodin, Y. Petrov (2022) Dynamical Models of Plasticity with Nonmonotonic Deformation Curves for Nanomaterials. *Metals*, 2022, 12, 1835.  
<https://doi.org/10.3390/met12111835> <https://www.mdpi.com/2075-4701/12/11/1835/pdf>

11. Kazarinov, N., Petrov, Y., Benin, A. (2022) Modeling of Dynamic Crack Propagation Under Quasistatic Loading. In: Manakov, A., Edigarian, A. (eds) International Scientific Siberian Transport Forum TransSiberia - 2021. TransSiberia 2021. Lecture Notes in Networks and Systems, vol 402. Springer, Cham. [https://doi.org/10.1007/978-3-030-96380-4\\_63](https://doi.org/10.1007/978-3-030-96380-4_63)
12. M.O. Ignatiev, Yu.V. Petrov, N.A. Kazarinov (2021) Simulation of Dynamic Crack Initiation Based on the Peridynamic Numerical Model and the Incubation Time Criterion. Technical Physics, 2021, Vol.66, No.3, pp.422–425 DOI: 10.1134/S1063784221030099
13. N. V. Mikhailova<sup>1</sup> and Yu. V. Petrov (2021) Effect of Impact Time Parameters on the Dynamic Strength in Spall Fracture. Physical Mesomechanics, 2021, Vol. 24, P.9-13. <https://link.springer.com/article/10.1134%2FS1029959921010021>
14. Yin Zhang, Yuri Petrov, Ya-pu Zhao (2021) Mode Localization and Eigenfrequency Curve Veerings of Two Overhanged Beams. Micromachines 2021, 12, 324. <https://doi.org/10.3390/mi12030324> <https://www.mdpi.com/2072-666X/12/3/324>
15. N.S. Selyutina, I.V. Smirnov, Yu.V. Petrov (2021) Stabilisation effect of strain hysteresis loop for steel 45. International Journal of Fatigue 145 (2021) 106133 <https://www.sciencedirect.com/science/article/abs/pii/S0142112320306654?via%3Dihub>
16. N.A. Kazarinov, Y.V. Petrov, A.V. Cherkasov (2021) Instability effects of the dynamic crack propagation process. Engineering Fracture Mechanics 242 (2021) 107438 <https://www.sciencedirect.com/science/article/abs/pii/S0013794420310092?via%3Dihub>
17. G. Volkov, A. Logachev, N. Granichin, Y.-P. Zhao, Y. Zhang, Y. Petrov (2021) The Influence of Background Ultrasonic Field on the Strength of Adhesive Zones under Dynamic Impact Loads. Materials 2021, Vol.14, Issue 12, 3188. <https://doi.org/10.3390/ma14123188>
18. N.S. Selyutina, Yu.V. Petrov, V. Parameswaran, A.P. Sharma (2021) Influence of dynamic loads on the fracture of brittle layers of a multilayer composite. J of Dyn Behav of Materials, 2021 <https://link.springer.com/article/10.1007/s40870-021-00323-6>
19. Y.V. Petrov, A.A. Utkin (2022) Delayed fracture phenomenon under pulse dynamic loads. Mechanics of Solids, 2022, Vol. 57, No. 1, pp. 77–87
20. Nikolai Granichin, Grigory Volkov, Yuri Petrov, Marina Volkova (2021) Randomized approach to determine dynamic strength of ice. Cybernetics and Physics, V10, N3, 2021, 122–126 <http://lib.physcon.ru/doc?id=795dbd7a3793>
21. Yin Zhang, Yuri Petrov and Ya-Pu Zhao (2020) Eigenfrequency loci crossings, veerings and mode splittings of twocantilevers coupled by an overhang. J. Phys. Commun. 4 (2020) 085010 <https://doi.org/10.1088/2399-6528/abab3f>
22. Y.V. Petrov, A.V. Cherkasov, N.A. Kazarinov (2020) Instability of critical characteristics of crack propagation. *Acta Mechanica* (2020).

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  28. N.A. Kazarinov, V.A. Bratov, N.F. Morozov, Y.V. Petrov, V.V. Balandin, M.A. Iqbal, N.K. Gupta (2020) Experimental and numerical analysis of PMMA impact fracture. *International Journal of Impact Engineering*, Volume 143, September 2020, 103597  
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  29. Y. Petrov, A. Logachev, N. Granichin, G. Volkov (2020) Adhesive Joint Fracture Under Combined Pulsed and Vibrational Loading (2020) *Structural Integrity*, 16, pp.100-105. DOI: 10.1007/978-3-030-47883-4\_18  
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