

## LIST OF PUBLICATIONS

BY VALERY I. LEVITAS

### Monographs

- [1] Large Deformation of Materials with Complex Rheological Properties at Normal and High Pressure. **Levitas V.I.** New York, Nova Science Publishers, 1996.
- [2] Thermomechanics of Phase Transformations and Inelastic Deformations in Microinhomogeneous Materials. **Levitas V.I.** Kiev, Naukova Dumka, 1992.
- [3] Large Elastoplastic Deformations of Materials at High Pressure. **Levitas V.I.** Kiev, Naukova Dumka, 1987.

### Papers in Refereed Journals

2024

- [4] Quantitative kinetic rules for plastic strain-induced  $\alpha$ - $\omega$  phase transformation in Zr under high pressure. **Dhar A., Levitas V.I., Pandey K. K., Park C., Somayazulu M., and Velisavljevic N.** Nature NPJ Computational Materials, 2024, in press.
- [5] In situ study of microstructure evolution and  $\alpha \rightarrow \omega$  phase transition in annealed and pre-deformed Zr under hydrostatic loading. **Pandey K.K., Levitas V.I., Park C., and Shen G.** Journal of Applied Physics, 2024, Vol. 136, 115901, 20 pages.
- [6] Unusual plastic strain-induced phase transformation phenomena in silicon. **Yesudhas S., Levitas V.I., Lin F., Pandey K. K., Smith J.** Nature Communications, 2024, Vol. 15, 7054, 13 pages and 35 pages of supplementary material.
- [7] Severe Plastic Deformation of Ceramics by High-Pressure Torsion: Review of Principles and Applications. **K. Edalati, J. Hidalgo-Jiménez, T. T. Nguyen, H. Sena, N. Enikeev, G. Rogl, V. I. Levitas, Z. Horita, M. Zehetbauer, R. Z. Valiev, T. G. Langdon.** Annual Review of Materials Research, 2024, Vol. 55 (in press).
- [8] Severe plastic deformation for producing superfunctional ultrafine-grained and heterostructured materials: an interdisciplinary review. **K. Edalati, A.Q. Ahmed, S. Akrami, K. Ameyama, V. Aptukov, R.N. Asfandiyarov, M. Ashida, V. Astanin, A. Bachmaier, V. Beloshenko, E.V. Bobruk, K. Bryla, J.M. Cabrera, A.P. Carvalho, N.Q. Chinh, I.C. Choi, R. Chulist, J.M. Cubero-Sesin, G. Davdian, M. Demirtas, S. Divinski, K. Durst, J. Dvorak, P. Edalati, S. Emura, N.A. Enikeev, G. Faraji, R.B. Figueiredo, R. Floriano, M. Fouladvind, D. Fruchart, M. Fuji, H. Fujiwara, M. Gajdics, D. Gheorghe, Ł. Gondek, J.E. González-Hernández, A. Gornakova, T. Grosdidier, J. Gubicza, D. Gunderov, L. He, O.F. Higuera, S. Hirose, A. Hohenwarter, Z. Horita, J. Horiky, Y. Huang, J. Huot, Y. Ikoma, T. Ishihara, Y. Ivanisenko, J.I. Jang, A.M. Jorge Jr, M. Kawabata-Ota, M. Kawasaki, T. Khelifa, J. Kobayashi, L. Kommel, A. Korneva, P. Kral, N. Kudriashova, S. Kuramoto,**

T.G. Langdon, D.H. Lee, V.I. Levitas, C. Li, H.W. Li, Y. Li, Z. Li, H.J. Lin, K.D. Liss, Y. Liu, D.M. Marulanda Cardona, K. Matsuda, A. Mazilkin, Y. Mine, H. Miyamoto, S.C. Moon, T. Müller, J.A. Muñoz, M.Y. Murashkin, M. Naeem, M. Novelli, D. Olasz, R. Pippan, V.V. Popov, E.N. Popova, G. Purcek, P. de Rango, O. Renk, D. Retraint, Á. Révész, V. Roche, P. Rodriguez-Calvillo, L. Romero-Resendiz, X. Sauvage, T. Sawaguchi, H. Sena, H. Shahmir, X. Shi, V. Sklenicka, W. Skrotzki, N. Skryabina, F. Staab, B. Straumal, Z. Sun, M. Szczerba, Y. Takizawa, Y. Tang, R.Z. Valiev, A. Vozniak, A. Voznyak, B. Wang, J.T. Wang, G. Wilde, F. Zhang, M. Zhang, P. Zhang, J. Zhou, X. Zhu, Y.T. Zhu, *Journal of Alloys and Compounds*, 2024, Vol. 2002, 174667, 150 pages.

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- [9] Tensorial stress-plastic strain fields in  $\alpha$  -  $\omega$  Zr mixture, transformation kinetics, and friction in diamond anvil cell. **Levitas V.I., Dhar A., and Pandey K.K.** *Nature Communications*, 2023, Vol. 14, 5955, 9 p. and 32 p. of Supplementary Materials.
- [10] Effect of a Micro-scale Dislocation Pileup on the Atomic-Scale Multi-variant Phase Transformation and Twinning. **Peng Y., Ji R., Phan T., Capolungo L., Levitas V.I., Xiong L.** *Computational Materials Science*, 2023, Vol. 230, 112508, 16 pages.
- [11] In-situ study of rules of nanostructure evolution, severe plastic deformations, and friction under high pressure. **Lin F., Levitas V.I., Pandey K.K., Yesudhas S., and Park C.** *Materials Research Letters*, 2023, Vol. 11, No. 9, 757-763.
- [12] Recent in situ Experimental and Theoretical Advances in Severe Plastic Deformations, Strain-Induced Phase Transformations, and Microstructure Evolution under High Pressure. **Levitas V.I.** *Material Transactions*, 2023, Vol. 64 (8), 1866-1878. Invited review.
- [13] Simulations of multivariant Si I to Si II phase transformation in polycrystalline silicon with finite-strain scale-free phase-field approach. **Babaei H., Pratoori R., and Levitas V.I.** *Acta Materialia*, 2023, Vol. 254, 118996, 24 pp.
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- [17] Nontrivial nanostructure, stress relaxation mechanisms, and crystallography for pressure-induced Si-I  $\rightarrow$  Si-II phase transformation. **Chen H., Levitas V.I., Popov D., and Velisavljevic N.** *Nature Communication*, 2022, Vol. 13, 982 (**Editor's highlight**) <https://www.nature.com/collections/eecgdgijhh>).

- [18] Phase field theory for fracture at large strains including surface stresses. **Jafarzadeh H., Farrahic G. H., Levitas V.I., and Javanbakht M.** International Journal of Engineering Sciences, 2022, Vol. 178, 103732, 28 pages.
- [19] An Atomistic-to-Microscale Computational Analysis of the Dislocation Pileup-induced Local Stresses near an Interface in Plastically Deformed Two-phase Materials. **Peng Y., Ji R., Phan T., Gao W., Levitas V.I., Xiong L.** Acta Materialia, 2022, Vol. 226, 117663, 14 pp.
- [20] Nanomaterials by Severe Plastic Deformation: Review of Historical Developments and Recent Advances. **Edalati K., Bachmaier A., Beloshenko V., Beygelzimer Y., Blank V., Botta W., Bryła K., Čížek J., Divinski S., Enikeev N., Estrin Y., Faraji G., Figueiredo B., Fuji M., Furuta T., Grosdidier T., Gubicza J., Hohenwarter A., Horita Z., Huot J., Ikoma Y., Janeček M., Kawasaki M., Král P., Kuramoto S., Langdon T., Leiva D., Levitas V.I., Mazilkin A., Mito M., Miyamoto M., Nishizaki T., Pippan R., Popov V., Popova E., Purcek G., Renk O., Révész Á., Sauvage X., Sklenicka V., Skrotzki W., Straumal B., Suwas S., Toth L., Tsuji N., Valiev R., Wilde G., Zehetbauer M., Zhu X.** Materials Research Letters, 2022, Vol. 10, No. 4, 163-256, invited review.
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- [24] Pseudoelastic deformation in Mo-based refractory multi-principal element alloys. **Sharma A., Singh P., Kirk T., Levitas V.I., Liaw P.K., Balasubramanian G., Arroyave R., and Johnson D.D.** Acta Materialia, 2021, Vol. 220, 117299, 9 pp.
- [25] Phase transformations, fracture, and other structural changes in inelastic materials. **Levitas V.I.** International Journal of Plasticity, 2021, Vol. 140, 102914, 51 pp., invited review.
- [26] Displacement field measurements in traditional and rotational diamond anvil cells. **Pandey K. K. and Levitas V. I.** Journal of Applied Physics, 2021, Vol. 129, No. 11, 115901, 8 pages (Editor’s Pick).
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- [38] Fatigue-resistant high-performance elastocaloric materials via additive manufacturing. **Hou H., Simsek E., Ma T., Johnson N. S., Qian S., Cissé C., Stasak D., Hasan N. A., Zhou L., Hwang Y., Radermacher R., Levitas V. I., Kramer M. J., Zaeem M. A., Stebner A. P., Ott R. T., Cui J., Takeuchi I.** *Science*, 2019, Vol. 366, No. 6469, 1116-1121.
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<sup>1</sup>Recognized as the most cited paper in Material Transactions during 2016-2023

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