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## List of Publications

### Book chapters

- [2] Z. Urban, Variational Principles for Immersed Submanifolds, in: D. Zenkov (Ed.), *The Inverse Problem of the Calculus of Variations, Local and Global Theory*, Atlantis Press, Amsterdam, 2015, pp. 103–170.
- [1] J. Volná and Z. Urban, First-order Variational Sequences in Field Theory, in: D. Zenkov (Ed.), *The Inverse Problem of the Calculus of Variations, Local and Global Theory*, Atlantis Press, Amsterdam, 2015, pp. 215–284.

### Papers (Peer-reviewed)

- [13] Z. Urban and J. Brajerčík, The fundamental Lepage form in variational theory for submanifolds, *Int. J. Geom. Meth. Mod. Phys.* **15**, No. 6 (2018) 1850103.  
DOI: [10.1142/S0219887818501037](https://doi.org/10.1142/S0219887818501037); [arXiv:1709.08345](https://arxiv.org/abs/1709.08345)
- [12] D. Krupka, Z. Urban, and J. Volná, Variational submanifolds of Euclidean spaces, *J. Math. Phys.* **59**, No. 3 (2018) 032903.  
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- [11] Z. Urban and J. Volná, The metrizability problem for Lorentz-invariant affine connections, *Int. J. Geom. Meth. Mod. Phys.* **13**, No. 8 (2016) 1650110.  
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- [10] J. Volná and Z. Urban, The interior Euler-Lagrange operator in field theory, *Math. Slovaca* **65**, No. 6 (2015) 1427–1444.  
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- [9] D. Krupka, G. Moreno, Z. Urban, and J. Volná, On a bicomplex induced by the variational sequence, *Int. J. Geom. Meth. Mod. Phys.* **12**, No. 5 (2015) 1550057.  
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- [8] Z. Urban and D. Krupka, Variational theory on Grassmann fibrations: Examples, *Acta Math. Acad. Paed. Nyiregyhasiensis* **31**, No. 1 (2015) 153–170.
- [7] Z. Urban and D. Krupka, Foundations of higher-order variational theory on Grassmann fibrations, *Int. J. Geom. Meth. Mod. Phys.* **11**, No. 7 (2014) 1460023.  
DOI: [10.1142/S0219887814600238](https://doi.org/10.1142/S0219887814600238)
- [6] D. Krupka, Z. Urban, and J. Volná, Variational projectors in fibred manifolds, *Miskolc Math. Notes* **14**, No. 2 (2013) 503–516.
- [5] Z. Urban and D. Krupka, The Helmholtz conditions for systems of second order homogeneous differential equations, *Publ. Math. Debrecen* **83**, No. 1-2 (2013) 71–84.  
DOI: [10.5486/PMD.2013.5500](https://doi.org/10.5486/PMD.2013.5500)
- [4] Z. Urban and D. Krupka, The Zermelo conditions and higher order homogeneous functions, *Publ. Math. Debrecen* **82**, No. 1 (2013) 59–76.  
DOI: [10.5486/PMD.2013.5265](https://doi.org/10.5486/PMD.2013.5265).
- [3] Z. Urban and D. Krupka, Variational sequences on fibred velocity spaces, 6th World Congress of Nonlinear Analysts, Athens, 2012, *Glob. J. Math. Sci.* **1**, No. 1 (2012) 77–87.
- [2] Z. Urban and D. Krupka, Variational sequences in mechanics on Grassmann fibrations, *Acta Appl. Math.* **112**, No. 2 (2010) 225–249.  
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- [1] D. Krupka and Z. Urban, Differential invariants of velocities and higher order Grassmann bundles, in: *Diff. Geom. Appl., Proc. Conf.*, in honour of Leonhard Euler, Olomouc, August 2007, pp. 463–473, World Scientific, Singapore 2008.

### Other Papers

- [5] Z. Urban and J. Volná, Globally variational forms on the Möbius strip: Examples, in: *Modern Mathematical Methods in Engineering, Proc. Conf.*, January 22–24, 2018, Horní Lomná, VSB-Technical University of Ostrava, pp. 255–262, 2018.
- [4] Z. Urban and J. Volná, Variational equations on the Möbius strip, in: *Systemy wspomagania w inżynierii produkcji*, Vol. 6, issue 4, Cross-border exchange of experience in production engineering using mathematical methods, June 7–9, 2017, Rybník, P.A. NOVA S.A., pp. 325–333, 2017.
- [3] J. Brajerčík and Z. Urban, On homogeneous functions in second-order field theory, in: *Systemy wspomagania w inżynierii produkcji*, Vol. 6, issue 4, Cross-border Exchange of experience in production engineering using mathematical methods, June 7–9, 2017, Rybník, P.A. NOVA S.A., pp. 230–236, 2017.
- [2] Z. Urban, Variational classes and mappings in second-order variational sequence: Explicit formulas (in Czech), *Kvaternion* **2** (2013) 69–81.
- [1] Z. Urban, Estimation of parameters of the regression function, *J. Electr. Eng.* **53**, No. 12/s (2002) 31–34.

**Thesis**

- [2] Z. Urban, Variational sequences in mechanics on Grassmann fibrations, Ph.D. Thesis, University of Ostrava, Czech Republic, pp. 75, 2011.
- [1] Z. Urban, The Grassmann prolongations of smooth manifolds, MSc. Thesis, Palacky University in Olomouc, pp. 37, 2005 (in Czech).

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