

## Publications

The list of publications includes books, book chapters and monographic articles, research articles, edited proceedings, translations, dissertations and unpublished notes and preprints.

### Books

- [1] D. Krupka, F. Klvana, *Exercises in Quantum Mechanics*, textbook in Czech, Faculty of Science, J.E. Purkyne University, Brno, 1973, 189 pp.
- [2] D. Krupka, *Mathematical Foundations of the General Relativity Theory*, textbook in Czech, Faculty of Science, J.E. Purkyne University, Brno, 1979, 130 pp.
- [3] D. Krupka, J. Musilova, *Integration on Euclidean spaces and Manifolds*, textbook in Czech, SPN Praha, 1982, 320 pp.
- [4] D. Krupka, *Introduction to Analysis on Manifolds*, textbook in Czech, SPN Praha, 1986, 96 pp.
- [5] D. Krupka, J. Musilova, *Linear and Multilinear Algebra*, textbook in Czech, SPN Praha, Czechoslovakia, 1989, 281 pp.
- [6] D. Krupka, J. Janyska, *Lectures on Differential Invariants*, J.E. Purkyne University, Faculty of Science, Brno, Czechoslovakia, 1990, 193 pp.
- [7] D. Krupka, O. Krupkova, *Topology and Geometry, Lectures and Solved Problems*, textbook in Czech, SPN Praha, 1990, 404 pp.; 2001 revised electronic edition
- [8] D. Krupka, D. Saunders, Eds., *Handbook of Global Analysis*, Elsevier, 2008, 1229 pp.
- [9] D. Krupka, *Introduction to Global Variational Geometry*, Atlantis Studies in Variational Geometry, Atlantis Press 2015, Book DOI: 10.2991/978-94-6239-0737, 371 pp.

### Book chapters, monographic articles

- [1] D. Krupka, *Some Geometric Aspects of Variational Problems in Fibered Manifolds*, Folia Fac. Sci. Nat. UJEP Brunensis, Physica 14, Brno, Czech Republic, 1973, 65 pp.; arXiv:math-ph/0110005, 2001
- [2] D. Krupka, *Differential Invariants* (Lecture Notes), Department of Algebra and Geometry, Faculty of Science, J.E. Purkyne University, Brno, 1979, 67 pp.
- [3] D. Krupka, J. Musilova, *Calculus of Odd Base Forms on Differential Manifolds*, Folia Fac. Sci. Nat. UJEP Brunensis 24 (1983) 65 pp.
- [4] D. Krupka, *Natural Lagrangian structures*, in: Differential Geometry, Banach Center Publications 12, Diff. Geom. Semester, Warsaw, Sept.-Dec. 1979; Polish Scientific Publishers, Warsaw, 1984, 185-210
- [5] D. Krupka, *Lectures on Variational Sequences*, Open Ed. & Sci., Opava, Czech Republic, 1995, 94 pp.
- [6] D. Krupka, M. Krupka, *Jets and contact elements*, in: *Proceedings of the Seminar on Differential Geometry*, D. Krupka, Ed., Mathematical Publications Vol. 2, Silesian University in Opava, Opava, Czech Republic, 2000, 39-85.
- [7] D. Krupka, *Global variational principles: Foundations and current problems*, in: K. Tas, D. Krupka, O. Krupkova, D. Baleanu, Eds., *Global Analysis and Applied Mathematics*, AIP Conf. Proc. 729, American Institute of Physics, 2004, 3-18
- [8] D. Krupka, *Global variational theory in fibred spaces*, in: D. Krupka, D. Saunders, Eds., *Handbook of Global Analysis*, Elsevier, 2008, 773-836

- [9] D. Krupka, *Introduction to Global Variational Geometry*, Atlantis Press, 2015, 354 pp.
- [10] A.M. Bloch, D. Krupka and D.V. Zenkov, *Helmholtz conditions and the method of controlled Lagrangians*, in *The Inverse Problem of the Calculus of Variations, Local and Global Theory*, D.V. Zenkov, Editor, Atlantis Press, 2015, 1-29
- [11] D. Krupka, *The Sonin-Douglas Problem*, in *The Inverse Problem of the Calculus of Variations, Local and Global Theory*, D.V. Zenkov, Editor, Atlantis Press, 2015, 31-73

## Research articles

- [1] D. Krupka, Lagrange theory in fibered manifolds, *Rep. Math. Phys.* 2 (1971) 121-133
- [2] D. Krupka, On the structure of the Euler mapping, *Arch. Math.* 10 (1974) 55-61
- [3] D. Krupka, On generalized invariant transformations, *Rep. Math. Phys.* 5 (1974) 353-358
- [4] D. Krupka, A. Trautman, General invariance of Lagrangian structures, *Bull. Acad. Polon. Sci., Ser. Sci. Math. Astronom. Phys.* 22 (1974) 207-211
- [5] D. Krupka, A setting for generally invariant Lagrangian structures in tensor bundles, *Bull. Acad. Polon. Sci. Ser. Sci. Math. Astronom. Phys.* 22 (1974) 967-972
- [6] D. Krupka, Lagrangians and topology, *Scripta Fac. Sci. Nat. UJEP Brunensis, Physica* 3-4 (1975) 265-270
- [7] D. Krupka, A geometric theory of ordinary first order variational problems in fibered manifolds, I. Critical sections, *J. Math. Anal. Appl.* 49 (1975) 180-206
- [8] D. Krupka, A geometric theory of ordinary first order variational problems in fibered manifolds, II. Invariance, *J. Math. Anal. Appl.* 49 (1975) 469-476
- [9] D. Krupka, A theory of generally invariant Lagrangians for the metric fields II, *Internat. J. Theoret. Phys.* 15 (1976) 949-959
- [10] D. Krupka, On a class of variational problems defined by polynomial lagrangians, *Arch. Math.* 12 (1976) 99-106
- [11] D. Krupka, A map associated to the Lepagean forms of the calculus of variations in fibered manifolds, *Czech. Math. J.* 27 (1977) 114-118
- [12] D. Krupka, A theory of generally invariant Lagrangians for the metric fields I, *Internat. J. Theoret. Phys.* 17 (1978) 359-368
- [13] D. Krupka, Elementary theory of differential invariants, *Arch. Math.* 14 (1978) 207-214
- [14] M. Horak, D. Krupka, On the first order invariant Einstein-Cartan variational structures, *Internat. J. Theoret. Phys.* 17 (1978) 573-584
- [15] D. Krupka, Mathematical theory of invariant interaction lagrangians, *Czech. J. Phys. B* 29 (1979) 300-303
- [16] D. Krupka, Fundamental vector fields on the type fibres of jet prolongations of tensor bundles, *Math. Slovaca* 29 (1979) 159-167
- [17] D. Krupka, Reducibility theorems for differentiable liftings in fibre bundles, *Arch. Math.* 15 (1979) 93-106
- [18] D. Krupka, On the Lie algebras of higher differential groups, *Bull. Acad. Polon. Sci., Ser. Sci. Math. Astronom. Phys.* 27 (1979) 235-239
- [19] D. Krupka, A remark on algebraic identities for the covariant derivatives of the curvature tensor, *Arch. Math.* 16 (1980) 205-211
- [20] D. Krupka, Finite order liftings in principal fiber bundles, *Beiträge zur Algebra und Geometrie* 11 (1981) 21-27
- [21] D. Krupka, On the local structure of the Euler-Lagrange mapping of the calculus of variations, in: *Differential Geometry and its Applications*, O. Kowalski, Ed., Proc. Conf., Nove Mesto na Morave, Czechoslovakia, Sept. 1980; Charles University, Prague, 1982, 181-188; arXiv:math-ph/0203034
- [22] M. Francaviglia, D. Krupka, The Hamiltonian formalism in higher-order variational problems, *Ann. Inst. H. Poincaré, Sec. A* 37 (1982) 295-315
- [23] D. Krupka, Local invariants of a linear connection, in: *Differential Geometry, Colloq. Math. Soc. Janos Bolyai* 31, North Holland, 1982, 349-369
- [24] D. Krupka, Lepagean forms in higher order variational theory, in: *Modern Developments in Analytical Mechanics*, Proc. IUTAM-ISIMM Sympos., Turin, June 1982, Academy of Sciences of Turin, 1983, 197-238
- [25] D. Krupka, J. Musilova, Integrals of motion in higher order mechanics and field theory, in Honour of M. Cernohorsky (in Czech), *Pokroky mat. fyz. astronom.* 28 (1983) 259-266
- [26] D. Krupka, O. Stepankova, On the Hamilton form in second order calculus of variations, in: Proc. Internat. Meeting "Geometry and Physics", Florence, October

- 1982, Pitagora, Bologna, 1983, 85-101
- [27] D. Krupka, J. Musilova, Hamilton extremals in higher order mechanics, *Arch. Math.* 20 (1984) 21-30
- [28] D. Krupka, On the higher order Hamilton theory in fibered spaces, in: D. Krupka, Ed., *Differential Geometry and its Applications*, Proc. Conf. Vol. 2, Nove Mesto na Morave, Czechoslovakia, Sept. 1983; J.E. Purkyne Univ., Brno, 1984, 167-184
- [29] D. Krupka, V. Mikolasova, On the uniqueness of some differential invariants, *Czech. Math. J.* 34 (1984) 588-597
- [30] D. Krupka, A. Sattarov, The inverse problem of the calculus of variations for Finsler structures, *Math. Slovaca* 35 (1985) 217-222
- [31] M. Francaviglia, D. Krupka, The Hamiltonian formalism in higher-order variational problems – Comment, *Ann. Inst. H. Poincare – Phys. Theor.* 42 (1985) 213-213
- [32] D. Krupka, Geometry of Lagrangean structures, 1. Odd base forms, *Arch. Math.* 22 (1986) 159-174
- [33] D. Krupka, Geometry of Lagrangean structures, 2. Differential forms on jet prolongations of fibered manifolds, *Arch. Math.* 22 (1986) 211-228
- [34] D. Krupka, Geometry of Lagrangean structures, 3. Lepagean forms and the first variation, in: Proc. 14th Winter School on Abstract Analysis, Srní, Czech Rep., Jan. 1986, Suppl. Rend. del. Circolo Mat. di Palermo, Ser. II, 1987, 187-224
- [35] D. Krupka, Regular Lagrangians and Lepagean forms, in: D. Krupka, A. Svec, Eds., *Differential Geometry and its Applications*, Proc. Conf., Brno, Czechoslovakia, Aug. 1986; Math. Appl., East Europa Series 27, Reidel, Dordrecht, 1987, 111-148
- [36] D. Krupka, Variational sequences on finite order jet spaces, in: J. Janyska, D. Krupka, Eds., *Differential Geometry and its Applications*, Proc. Conf., Brno, Czechoslovakia, Aug. 1989; World Scientific, Singapore, 1990, 236-254
- [37] D. Krupka, Topics in the calculus of variations: Finite order variational sequences, in: O. Kowalski, D. Krupka, Eds., *Differential Geometry and its Applications*, Proc. Conf., Opava, Czechoslovakia, Aug. 1992; Silesian Univ., Opava, 1993, 473-495
- [38] D. Krupka, The contact ideal, *Diff. Geom. Appl.* 5 (1995) 257-276
- [39] D. Krupka, The trace decomposition problem, *Beiträge zur Algebra und Geometrie* 36 (1995) 303-315
- [40] D. Krupka, The trace decomposition of tensors of type (1,2) and (1,3), in: *New Developments in Differential Geometry*, Proc. Colloq. on Diff. Geom., July 1994, Debrecen, J. Szente, L. Tamassy, Eds., Kluwer Academic Publishers, Dordrecht, 1996, 243-253
- [41] D. Krupka, Variational sequences in mechanics, *Calc. Var.* 5 (1997) 557-583
- [42] D.R. Grigore, D. Krupka, Invariants of velocities and higher order Grassmann bundles *J. Geom. Phys.* 24 (1998) 244-264
- [43] D. Krupka, J. Musilova, Trivial Lagrangians in field theory, *Diff. Geom. Appl.* 9 (1998) 293- 305
- [44] D. Krupka, J. Musilova, O. Krupkova, The variational sequence in physical theories (in Czech), *Cs. cas. pro fyziku* A48 (1998) 330-341
- [45] Dao Qui Chao, D. Krupka, 3rd order differential invariants of coframes, *Math. Slovaca* 49 (1999) 563-576
- [46] D. Krupka, Variational sequences and variational bicomplexes, in: *Differential Geometry and its Applications*, Proc. Conf., Brno, Czech Republic, August 1998; I. Kolar, O. Kowalski, D. Krupka, J. Slovak, Eds., Masaryk Univ., Brno, 1999, 525-531
- [47] D. Krupka, J. Musilova, Erratum: Trivial Lagrangians in field theory, *Diff. Geom. Appl.* 9 (1998) 293-305; *Diff. Geom. Appl.* 10 (1999) 303
- [48] D. Krupka, J. Musilova, The variational sequence and trivial Lagrangians (in Czech), in: M. Reiffers, L. Just, Eds., Proc. 13th Conf. of Czech and Slovak Physicists, Zvolen, Slovakia, August 23-26, 1999, The Zvolen Technical University, 2000, 328-331
- [49] D. Krupka, J. Musilova, Recent results in variational sequence theory, in: *Steps in Differential Geometry*, Proc. Colloq., L. Kozma, P.T. Nagy, L. Tamassy, Eds., July 2000, Debrecen, Hungary, University of Debrecen, 2001, 161-186
- [50] D. Krupka, Global variational functionals on fibered spaces, *Nonlinear Analysis* 47 (2001) 2633-2642
- [51] D. Krupka, Natural projectors in tensor spaces, *Beiträge zur Algebra und Geometrie* 43 (2002) 217-231
- [52] D. Krupka, Variational principles for energy-momentum tensors, *Rep. Math. Phys.* 49 (2002) 259-268
- [53] D. Krupka, The Weyl tensors, *Publ. Math. Debrecen* 62 (2003) 447-460.
- [54] P. Musilova, D. Krupka, Differential invariants of immersions of manifolds with metric fields, *Rep. Math. Phys.* 51 (2003) 307-313

- [55] J. Bräuer, D. Krupka, Variational principles for locally variational forms, *J. Math. Phys.* 46 (2005) 052903, 1-15
- [56] J. Bräuer, D. Krupka, Variational principles on frame bundles, in: J. Bures, O. Kowalski, D. Krupka, J. Slovák, Eds., *Differential Geometry and Its Applications*, Proc. Conf., Prague, Aug. 2004: Charles University in Prague, Czech Republic, 2005, 559-569. [Zbl 1111.49030](#)
- [57] D. Krupka, J. Sedenkova, Variational sequences and Lepage forms, in: J. Bures, O. Kowalski, D. Krupka, J. Slovák, Eds., *Differential Geometry and Its Applications*, Proc. Conf., Prague, Aug. 2004: Charles University in Prague, Czech Republic, 2005, 617-627
- [58] D. Krupka, O. Krupkova, G. Prince, W. Sarlet, Contact symmetries and variational sequences, in: J. Bures, O. Kowalski, D. Krupka, J. Slovák, Eds., *Differential Geometry and Its Applications*, Proc. Conf., Prague, Aug. 2004: Charles University in Prague, Czech Republic, 2005, 605-615
- [59] J. Bräuer, D. Krupka, Noether currents and order reduction on frame bundles, in: *Proc. 40th Sympos. on Finsler Geometry "In the Memory of our Teachers"*, H. Shimada, V.S. Sabau, Eds., Hokkaido Tokai University, Sapporo, Society of Finsler Geometry, 2005, 34-37
- [60] D. Krupka, Trace decompositions of tensor spaces, *Linear and Multilinear Algebra* 54 (2006) 235-263
- [61] D. Krupka, The total divergence equation, *Lobachevskii Journal of Mathematics* 23 (2006) 71-93
- [62] D. Krupka, O. Krupkova, G. Prince, W. Sarlet, Contact symmetries of the Helmholtz form, *Diff. Geom. Appl.* 25 (2007) 518-542
- [63] J. Bräuer, D. Krupka, Cohomology and local variational principles, Proc. of the XV International Workshop on Geometry and Physics (Puerto de la Cruz, Tenerife, Canary Islands, Spain, September 11–16, 2006, Publ. de la RSME, 2007) 119-124
- [64] D. Krupka, Natural variational principles, in: G. Gaeta, R. Vitolo, S. Walcher, Eds., *Symmetry and Perturbation Theory* (SPT 2007), Proc. Conf., Otranto, Italy, June 2-9, 2007, World Scientific, 2007, 116-123
- [65] D. Krupka, The structure of the Euler-Lagrange mapping, paper in honour of N.I. Lobachevskii, *Russian Mathematics* 51 (2007) 52-70
- [66] D. Krupka, The structure of the Euler-Lagrange mapping (in Russian), *Izvestiya VUZ, Mathematics* (2007), 12, 51-69
- [67] D. Krupka, The Vainberg-Tonti Lagrangian and the Euler-Lagrange mapping, in F. Cantrijn, B. Langerock, Eds., *Differential Geometric Methods in Mechanics and Field Theory*, Volume in Honour of W. Sarlet, Gent, Academia Press, 2007, 81-90
- [68] A. Patak, D. Krupka, Geometric structure of the Hilbert-Yang-Mills functional, *Internat. J. Geom. Met. Mod. Phys.* 5 (2008) 387-405
- [69] D. Krupka, O. Krupkova, Contact symmetries and variational PDE's, *Acta Appl. Math.* 101 (2008), in Honour of V. Lychagin, 163-176
- [70] D. Krupka, Z. Urban, Differential invariants and higher-order Grassmann bundles, in: O. Kowalski, D. Krupka, O. Krupkova, J. Slovák, Eds., *Differential Geometry and its Applications*, in Honour of L. Euler, Proc. Conf., Olomouc, Aug. 2007; World Scientific, Singapore, 2008, 463-473
- [71] Z. Urban, D. Krupka, Variational sequences in mechanics on Grassmann fibrations, *Acta Appl. Math.* 112 (2010), 225-249, DOI 10.1007/s10440-010-9561-y
- [72] D. Krupka, M. Krupka, Higher order Grassmann fibrations and the calculus of variations, *Balkan J. Geom. Appl.* 15 (2010) 68 - 79
- [73] D. Krupka, O. Krupkova, D. Saunders, The Cartan form and its generalizations in the calculus of variations, *Int. J. Geom. Meth. Mod. Phys.* 07 (2010) 631-654
- [74] D. Krupka, O. Krupkova, D. Saunders, Cartan-Lepage forms in geometric mechanics, doi: 10.1016/j.ijnonlinmec.2011.09.002, *Internat. J. of Non-linear Mechanics* 47 (2011) 1154-1160
- [75] E. Tanaka, D. Krupka, On metrizability of invariant affine connections, *Internat. J. Geom. Met. Mod. Phys.* 9 (2012) 1250014 (15 pages), DOI:10.1142/S0219887812500144
- [76] Z. Urban, D. Krupka, Variational sequences on fibred velocity spaces, *Global Journal of Mathematical Sciences*, The 6th International Federation of Nonlinear Analysts Conference, 1 (2012) 77-87
- [77] Z. Urban, D. Krupka, The Zermelo conditions and generalized homogeneous functions, *Publ. Math. Debrecen* 82 (2013), 59-76; DOI: 10.5486/PMD.2013.5265
- [78] Tongzhu Li, D. Krupka, The geometry of tangent bundles: Canonical vector fields,

- Geometry (2013), Hindawi Publishing Corporation, Article ID 364301, 10 pp., <http://dx.doi.org/10.1155/2013/364301>
- [79] Z. Urban, D. Krupka, The Helmholtz conditions for systems of second order homogeneous differential equations, *Publ. Math. Debrecen* 83 (2013), 71-84; DOI: 10.5486/PMD.2013.5500
- [80] D. Krupka, Z. Urban, J. Volna, Variational projectors in fibred manifolds, *Miskolc Mathematical Notes* 14 (2013), 503-516
- [81] E. Tanaka, D. Krupka, On the structure of Finsler and areal spaces, *Miskolc Mathematical Notes* 14 (2013), 539-546
- [82] D. Krupka, Lepage forms in Kawaguchi spaces and the Hilbert form, paper in honor of Professor Lajos Tamassy, *Publ. Math. Debrecen* 84 (2014), 147-164; DOI: 10.5486/PMD.2014.5791
- [83] J. Brajercik, M. Demko, D. Krupka, Principal bundle structure on jet prolongations of frame bundles, *Math. Slovaca* 64 (2014), 1277-1290; DOI: 10.2478/s12175-014-0275-x
- [84] Z. Urban, D. Krupka, Foundations of higher-order variational theory on Grassmann fibrations, *Internat. J. of Geom. Methods in Modern Physics* 11 (2014); DOI: 10.1142/S0219887814600238
- [85] Z. Urban, D. Krupka, Variational theory on Grassmann fibrations: Examples, *Acta Math. Acad. Paed. Nyiregyhasiensis* 31, No. 1 (2015) 153-170
- [86] D. Krupka, Invariant variational structures on fibred manifolds, *Internat. J. of Geom. Methods in Modern Physics* 12 (2015) 1550020; DOI: 10.1142/S0219887815500206
- [87] D. Krupka, G. Moreno, Z. Urban, and J. Volna, On a bicomplex induced by the variational sequence, *International Journal of Geometric Methods in Modern Physics* (2015), DOI: 10.1142/S0219887815500577
- [88] N. Voicu, D. Krupka, Canonical variational completion of differential equations, *J. Math. Phys.* 56 (4), 043507 (2015); <http://doi.org/10.1063/1.4918789>
- [89] D. Krupka, Z. Urban, J. Volna, Variational submanifolds of Euclidean spaces, *Journal of Mathematical Physics* 59, 032903 (2018); doi: 10.1063/1.5010221
- [90] D. Krupka, Variational forces, *Journal of Mathematical Sciences* (2019), in print
- [91] D. Krupka, Lepage forms in Finsler geometry: 2nd-order generalization, *Internat. J. of Geom. Methods in Modern Physics* 16, 1941005 (2019); <https://doi.org/10.1142/S0219887819410056>
- [92] D. Krupka, Variational principles: Projectability onto Grassmann fibrations, *Journal of Mathematical Physics* 61, 123501 (2020); <https://doi.org/10.1063/5.0019676>
- [93] D. Krupka, Higher-order homogeneous functions: Classification, *Publ. Math. Debrecen* (2021), to appear

## Proceedings

- [1] D. Krupka, Ed., *Differential Geometry and its Applications*, Proc. Conf. Vol. 2, Nove Mesto na Morave, Czechoslovakia, Sept. 1983; J.E. Purkyne Univ., Brno, 1984, 310 pp.
- [2] D. Krupka, A. Svec, Eds., *Differential Geometry and its Applications*, Proc. Conf., Brno, Czechoslovakia, Aug. 1986; Math. Appl., East Eur. Series 27, Reidel, Dordrecht, 1987, 381 pp.
- [3] D. Krupka, A. Svec, Eds., *Differential Geometry and its Applications*, Communications, Proc. Conf. Vol. 2, Brno, Czechoslovakia, Aug. 1986; J.E. Purkyne Univ., Brno, 1987, 323 pp.
- [4] J. Janyska, D. Krupka, Eds., Differential Geometry and its Applications, Proc. Conf., Brno, Czechoslovakia, Aug. 1989; World Scientific, Singapore, 1990, 465 pp.
- [5] O. Kowalski, D. Krupka, Eds., *Differential Geometry and its Applications*, Proc. Conf., Opava, Czechoslovakia, Aug. 1992; Silesian Univ., Opava, 1993, 540 pp.
- [6] I. Kolar, O. Kowalski, D. Krupka, J. Slovak, Eds., *Differential Geometry and its Applications*, Satellite Conf. of ISM in Berlin Proc. Conf., Brno, Czechoslovakia, Aug. 1998; Masaryk Univ., Brno, 1999, 664 pp.
- [7] D. Krupka, Ed., *Proceedings of the Seminar on Differential Geometry*, Silesian Univ., Opava, Czech Republic, 2000
- [8] O. Kowalski, D. Krupka, J. Slovak, Eds., *Differential Geometry and its Applications*, Proc. Conf. Part 1, Opava, Czech Republic, Aug. 27-31, 2001; Diff. Geom. Appl. 17,

- 2002, special issue
- [9] O. Kowalski, D. Krupka, J. Slovák, Eds., *Differential Geometry and its Applications*, Proc. Conf. Part 2, Aug. 27-31, 2001, Opava, Czech Republic; Silesian University, Opava, 2003, 402 pp.
  - [10] K. Tas, D. Krupka, O. Krupkova, D. Baleanu, Eds., *Global Analysis and Applied Mathematics*, AIP Conf. Proc. 729, American Institute of Physics, 2004.
  - [11] J. Bures, O. Kowalski, D. Krupka, J. Slovák, Eds., *Differential Geometry and Its Applications*, Proc. Conf., Prague, Aug. 2004: Charles University in Prague, Czech Republic, 2005, 644 pp.
  - [12] O. Kowalski, D. Krupka, O. Krupkova, J. Slovák, Eds., *Differential Geometry and Its Applications*, in Honour of L. Euler, Proc. Conf., Olomouc, Aug. 2007; World Scientific, Singapore, 2008.

## Translation

- [1] V.M. Alexejev, V.M. Tichomirov, S.V. Fomin, *Mathematical Theory of Optimal Processes* (translation from Russian to Czech I. Horova, D. Krupka), Academia, Praha, 1991.

## Dissertations

- [1] D. Krupka, A contribution to the theory of weak interactions of strongly interacting particles (in Slovak), MSc thesis, J.E. Purkyne University, Brno, 1965.
- [2] D. Krupka, *Geometric Aspects of the Theory of Invariant Lagrange Structures*, PhD (CSc.) Dissertation, Faculty of Mathematics and Physics, Charles University, Prague, 1976.
- [3] D. Krupka, *Geometric Problems of the Calculus of Variations on Fibered Spaces*, Assoc. Prof. (Doc.) Dissertation, J.E. Purkyne University, Brno, 1980.
- [4] D. Krupka, *Natural Lagrangean structures*, DrSc. Dissertation, Czechoslovak Academy of Sciences, Prague, 1981.

## Unpublished notes, preprints

- [1] D. Krupka, *CP-noninvariant weak interactions of strongly interacting particles* (in Slovak), Czechoslovak Student Scientific Activity 1965, Bratislava (paper awarded the first prize in theoretical physics).
- [2] D. Krupka, *Natural Lagrangian structures*, Lecture delivered at the Differential Geometry Semester, Stefan Banach International Mathematical Center, Warsaw, October 1979, 47 pp.
- [3] D. Krupka, L. Klapka, J. Musilova, *Geometric Methods in the Calculus of Variations* (Lecture Notes in Czech), Poprad 1984, J.E. Purkyne University, Brno, 1984.
- [4] V.M. Alexejev, E.M. Galeev, S.V. Fomin, *Exercises in Mathematical Theory of Optimal Processes* (Ulohy z matematicke teorie optimalnich procesu), translation from Russian to Czech I. Horova, D. Krupka, 1988.
- [5] D. Krupka, The geometry of Lagrange Structures, Preprint Series in Global Analysis GA7/1997, Silesian University Opava, Czech Republic, 82 pp.
- [6] D. Krupka, q-equations, Preprint Series in Global Analysis GA6/1997, Dept. of Math., Silesian Univ. Opava, Czech Republic, 16 pp.
- [7] D. Krupka, Elementary Sheaf Theory, Preprint Series in Global Analysis GA2/1998, Silesian University Opava, Czech Republic, 64 pp.
- [8] D. Krupka, *Smooth Manifolds*, Preprint Series in Global Analysis GA14/2000, Silesian University Opava, Czech Republic, 31 pp.
- [9] D. Krupka, M. Lenc, The Hilbert variational principle, Preprint 3/200GACR (201/00/0724), Masaryk University, Brno, 2002, 75 pp.
- [10] D. Krupka, *Advanced Analysis on Manifolds*, 2011, 275pp.
- [11] D. Krupka, *The Inverse Problem of the Calculus of Variations, An Introduction*, Bahia Blanca University, Argentina, 2013, 184 pp.