

Publikationen

Patrick Mehlitz*

5. Juli 2024

Veröffentlichungen in Fachzeitschriften

- [47] M. Benko and P. Mehlitz. On the directional asymptotic approach in optimization theory. *Mathematical Programming*, Seiten 1–79, 2024. [doi:10.1007/s10107-024-02089-w](https://doi.org/10.1007/s10107-024-02089-w).
- [46] A. De Marchi und P. Mehlitz. Local properties and augmented Lagrangians in fully nonconvex composite optimization. *Journal of Nonsmooth Analysis and Optimization*, 5:12235, 2024. [doi:10.46298/jnsao-2024-12235](https://doi.org/10.46298/jnsao-2024-12235).
- [45] L. O. Jolaoso, P. Mehlitz, und A. B. Zemkoho. A fresh look at nonsmooth Levenberg–Marquardt methods with applications to bilevel optimization. *Optimization*, Seiten 1–48, 2024. [doi:10.1080/02331934.2024.2313688](https://doi.org/10.1080/02331934.2024.2313688).
- [44] D. Hoff und P. Mehlitz. Notes on the value function approach to multiobjective bilevel optimization. *Optimization*, Seiten 1–37, 2024. [doi:10.1080/02331934.2024.2323107](https://doi.org/10.1080/02331934.2024.2323107).
- [43] P. Mehlitz. A simple proof of second-order sufficient optimality conditions in nonlinear semidefinite optimization. *Optimization Letters*, 18:965–976, 2024. [doi:10.1007/s11590-023-02031-7](https://doi.org/10.1007/s11590-023-02031-7).
- [42] M. Fabian, A. Y. Kruger, und P. Mehlitz. Fuzzy multiplier, sum and intersection rules in non-Lipschitzian settings: Decoupling approach revisited. *Journal of Mathematical Analysis and Applications*, 532(2):127985, 2024. [doi:10.1016/j.jmaa.2023.127985](https://doi.org/10.1016/j.jmaa.2023.127985).
- [41] X. Jia, C. Kanzow, und P. Mehlitz. Convergence analysis of the proximal gradient method in the presence of the Kurdyka–Łojasiewicz property without global Lipschitz assumptions. *SIAM Journal on Optimization*, 33(4):3038–3056, 2023. [doi:10.1137/23M1548293](https://doi.org/10.1137/23M1548293).

*Philipps-Universität Marburg, Fachbereich Mathematik und Informatik, 35032 Marburg, Deutschland,
mehlitz@uni-marburg.de

- [40] A. De Marchi, X. Jia, C. Kanzow und P. Mehlitz. Constrained composite optimization and augmented Lagrangian methods. *Mathematical Programming*, 201:863–896, 2023. [doi:10.1007/s10107-022-01922-4](https://doi.org/10.1007/s10107-022-01922-4).
- [39] M. Benko und P. Mehlitz. Why second-order sufficient conditions are, in a way, easy – or – revisiting calculus for second subderivatives. *Journal of Convex Analysis*, 30(2):541–589, 2023. URL: <https://www.heldermann.de/JCA/JCA30/JCA302/jca30031.htm>.
- [38] X. Jia, C. Kanzow, P. Mehlitz und G. Wachsmuth. An augmented Lagrangian method for optimization problems with structured geometric constraints. *Mathematical Programming*, 199:1365–1415, 2023. [doi:10.1007/s10107-022-01870-z](https://doi.org/10.1007/s10107-022-01870-z).
- [37] P. Mehlitz. Asymptotic regularity for Lipschitzian nonlinear optimization problems with applications to complementarity-constrained and bilevel programming. *Optimization*, 72:277–320, 2023. [doi:10.1080/02331934.2022.2031190](https://doi.org/10.1080/02331934.2022.2031190).
- [36] C. Kanzow und P. Mehlitz. Convergence properties of monotone and nonmonotone proximal gradient methods revisited. *Journal of Optimization Theory and Applications*, 195:624–646, 2022. [doi:/10.1007/s10957-022-02101-3](https://doi.org/10.1007/s10957-022-02101-3).
- [35] A. Y. Kruger und P. Mehlitz. Optimality conditions, approximate stationarity, and applications – a story beyond Lipschitzness. *ESAIM: Control, Optimisation and Calculus of Variations*, 28:42, 2022. [doi:10.1051/cocv/2022024](https://doi.org/10.1051/cocv/2022024).
- [34] P. Mehlitz und G. Wachsmuth. Subdifferentiation of nonconvex sparsity-promoting functionals on Lebesgue spaces. *Siam Journal on Control and Optimization*, 60(3):1819–1839, 2022. [doi:10.1137/21M1435173](https://doi.org/10.1137/21M1435173).
- [33] P. Mehlitz und L. I. Minchenko. R-regularity of set-valued mappings under the relaxed constant positive linear dependence constraint qualification with applications to parametric and bilevel optimization. *Set-Valued and Variational Analysis*, 30:179–205, 2022. [doi:10.1007/s11228-021-00578-0](https://doi.org/10.1007/s11228-021-00578-0).
- [32] M. Benko und P. Mehlitz. Calmness and calculus: two basic patterns. *Set-Valued and Variational Analysis*, 30:81–117, 2022. [doi:10.1007/s11228-021-00589-x](https://doi.org/10.1007/s11228-021-00589-x).
- [31] C. Kanzow, P. Mehlitz und D. Steck. Relaxation schemes for mathematical programmes with switching constraints. *Optimization Methods and Software*, 36(6):1223–1258, 2022. [doi:10.1080/10556788.2019.1663425](https://doi.org/10.1080/10556788.2019.1663425).
- [30] M. Benko und P. Mehlitz. On implicit variables in optimization theory. *Journal of Nonsmooth Analysis and Optimization*, 2:7215, 2021. [doi:10.46298/jnsao-2021-7215](https://doi.org/10.46298/jnsao-2021-7215).
- [29] F. Harder, P. Mehlitz und G. Wachsmuth. Reformulation of the M-stationarity conditions as a system of discontinuous equations and its solution by a semismooth Newton method. *SIAM Journal on Optimization*, 31(2):1459–1488, 2021. [doi:10.1137/20M1321413](https://doi.org/10.1137/20M1321413).

- [28] Y. Deng, P. Mehlitz und U. Prüfert. Coupled versus decoupled penalization of control complementarity constraints. *ESAIM Control, Optimisation and Calculus of Variations*, 27:1–31, 2021. [doi:10.1051/cocv/2021022](https://doi.org/10.1051/cocv/2021022).
- [27] P. Mehlitz und A. B. Zemkoho. Sufficient optimality conditions in bilevel programming. *Mathematics of Operations Research*, 46(4):1573–1598, 2021. [doi:10.1287/moor.2021.1122](https://doi.org/10.1287/moor.2021.1122).
- [26] P. Mehlitz, L. I. Minchenko und A. B. Zemkoho. A note on partial calmness for bilevel optimization problems with linearly structured lower level. *Optimization Letters*, 15:1277–1291, 2021. [doi:10.1007/s11590-020-01636-6](https://doi.org/10.1007/s11590-020-01636-6).
- [25] P. Mehlitz. Asymptotic stationarity and regularity for nonsmooth optimization problems. *Journal of Nonsmooth Analysis and Optimization*, 1:6575, 2020. [doi:10.46298/jnsao-2020-6575](https://doi.org/10.46298/jnsao-2020-6575).
- [24] E. Börgens, C. Kanzow, P. Mehlitz und G. Wachsmuth. New constraint qualifications for optimization problems in Banach spaces based on asymptotic KKT conditions. *SIAM Journal on Optimization*, 30(4):2956–2982, 2020. [doi:10.1137/19M1306804](https://doi.org/10.1137/19M1306804).
- [23] P. Mehlitz. A comparison of solution approaches for the numerical treatment of or-constrained optimization problems. *Computational Optimization and Applications*, 76(1):233–275, 2020. [doi:10.1007/s10589-020-00169-z](https://doi.org/10.1007/s10589-020-00169-z).
- [22] P. Mehlitz. Stationarity conditions and constraint qualifications for mathematical programs with switching constraints. *Mathematical Programming*, 181(1):149–186, 2020. [doi:10.1007/s10107-019-01380-5](https://doi.org/10.1007/s10107-019-01380-5).
- [21] S. Dempe und P. Mehlitz. Semivectorial bilevel programming versus scalar bilevel programming. *Optimization*, 69(4):657–679, 2020. [doi:10.1080/02331934.2019.1625900](https://doi.org/10.1080/02331934.2019.1625900).
- [20] C. Clason, Y. Deng, P. Mehlitz und U. Prüfert. Optimal control problems with control complementarity constraints: existence results, optimality conditions, and a penalty method. *Optimization Methods and Software*, 35(1):142–170, 2020. [doi:10.1080/10556788.2019.1604705](https://doi.org/10.1080/10556788.2019.1604705).
- [19] Y. Deng, P. Mehlitz und U. Prüfert. On an optimal control problem with gradient constraints. *Optimization*, 69(3):519–551, 2020. [doi:10.1080/02331934.2019.1604707](https://doi.org/10.1080/02331934.2019.1604707).
- [18] P. Mehlitz. On the linear independence constraint qualification in disjunctive programming. *Optimization*, 69(10):2241–2277, 2020. [doi:10.1080/02331934.2019.1679811](https://doi.org/10.1080/02331934.2019.1679811).
- [17] Y. Deng, P. Mehlitz und U. Prüfert. Optimal control in first-order Sobolev spaces with inequality constraints. *Computational Optimization and Applications*, 72(3):797–826, 2019. [doi:10.1007/s10589-018-0053-8](https://doi.org/10.1007/s10589-018-0053-8).

- [16] S. Dempe, F. Harder, P. Mehlitz und G. Wachsmuth. Solving inverse optimal control problems via value functions to global optimality. *Journal of Global Optimization*, 74(2):297–325, 2019. [doi:10.1007/s10898-019-00758-1](https://doi.org/10.1007/s10898-019-00758-1).
- [15] F. Benita und P. Mehlitz. Solving optimal control problems with terminal complementarity constraints via Scholtes’ relaxation scheme. *Computational Optimization and Applications*, 72(2):413–430, 2019. [doi:10.1007/s10589-018-0050-y](https://doi.org/10.1007/s10589-018-0050-y).
- [14] P. Mehlitz. On the sequential normal compactness condition and its restrictiveness in selected function spaces. *Set-Valued and Variational Analysis*, 27(3):763–782, 2019. [doi:10.1007/s11228-018-0475-6](https://doi.org/10.1007/s11228-018-0475-6).
- [13] P. Mehlitz und G. Wachsmuth. The weak sequential closure of decomposable sets in Lebesgue spaces and its application to variational geometry. *Set-Valued and Variational Analysis*, 27(1):265–294, 2019. [doi:10.1007/s11228-017-0464-1](https://doi.org/10.1007/s11228-017-0464-1).
- [12] F. Benita und P. Mehlitz. Optimal control problems with terminal complementarity constraints. *SIAM Journal on Optimization*, 28(4):3079–3104, 2018. [doi:10.1137/16M107637X](https://doi.org/10.1137/16M107637X).
- [11] S. Dempe, F. Mefo Kue und P. Mehlitz. Optimality conditions for special semidefinite bilevel optimization problems. *SIAM Journal on Optimization*, 28(2):1564–1587, 2018. [doi:10.1137/16M1099303](https://doi.org/10.1137/16M1099303).
- [10] S. Dempe, F. Mefo Kue und P. Mehlitz. Optimality conditions for mixed discrete bilevel optimization problems. *Optimization*, 67(6):737–756, 2018. [doi:10.1080/02331934.2018.1427092](https://doi.org/10.1080/02331934.2018.1427092).
- [9] P. Mehlitz und G. Wachsmuth. The limiting normal cone to pointwise defined sets in Lebesgue spaces. *Set-Valued and Variational Analysis*, 26(3):449–467, 2018. [doi:10.1007/s11228-016-0393-4](https://doi.org/10.1007/s11228-016-0393-4).
- [8] S. Franke, P. Mehlitz und M. Pilecka. Optimality conditions for the simple convex bilevel programming problem in Banach spaces. *Optimization*, 67(2):237–268, 2018. [doi:10.1080/02331934.2017.1394296](https://doi.org/10.1080/02331934.2017.1394296).
- [7] P. Mehlitz. Necessary optimality conditions for a special class of bilevel programming problems with unique lower level solution. *Optimization*, 66(10):1533–1562, 2017. [doi:10.1080/02331934.2017.1349123](https://doi.org/10.1080/02331934.2017.1349123).
- [6] P. Mehlitz. Bilevel programming problems with simple convex lower level. *Optimization*, 65(6):1203–1227, 2016. [doi:10.1080/02331934.2015.1122006](https://doi.org/10.1080/02331934.2015.1122006).
- [5] P. Mehlitz und G. Wachsmuth. Weak and strong stationarity in generalized bilevel programming and bilevel optimal control. *Optimization*, 65(5):907–935, 2016. [doi:10.1080/02331934.2015.1122007](https://doi.org/10.1080/02331934.2015.1122007).

- [4] F. Benita, S. Dempe und P. Mehlitz. Bilevel optimal control problems with pure state constraints and finite-dimensional lower level. *SIAM Journal on Optimization*, 26(1):564–588, 2016. doi:[10.1137/141000889](https://doi.org/10.1137/141000889).
- [3] F. Benita und P. Mehlitz. Bilevel optimal control with final-state-dependent finite-dimensional lower level. *SIAM Journal on Optimization*, 26(1):718–752, 2016. doi:[10.1137/15M1015984](https://doi.org/10.1137/15M1015984).
- [2] V. Kalashnikov, F. Benita und P. Mehlitz. The natural gas cash-out problem: a bilevel optimal control approach. *Mathematical Problems in Engineering*, Seiten 1–17, 2015. doi:[10.1155/2015/286083](https://doi.org/10.1155/2015/286083).
- [1] S. Dempe und P. Mehlitz. Lipschitz continuity of the optimal value function in parametric optimization. *Journal of Global Optimization*, 61(2):363–377, 2015. doi:[10.1007/s10898-014-0169-z](https://doi.org/10.1007/s10898-014-0169-z).

Buchbeiträge

- [2] S. Dempe, F. Harder, P. Mehlitz und G. Wachsmuth. Analysis and solution methods for bilevel optimal control problems. In M. Hintermüller, R. Herzog, C. Kanzow, M. Ulbrich, and S. Ulbrich, Editoren, *Non-Smooth and Complementarity-Based Distributed Parameter Systems: Simulation and Hierarchical Optimization*, Seiten 77–99. Springer International, Cham, 2022. doi:[10.1007/978-3-030-79393-7_4](https://doi.org/10.1007/978-3-030-79393-7_4).
- [1] P. Mehlitz und G. Wachsmuth. Bilevel optimal control: existence results and stationarity conditions. In S. Dempe and A. B. Zemkoho, Editoren, *Bilevel Optimization: Advances and Next Challenges*, Seiten 451–484. Springer, Cham, 2020. doi:[10.1007/978-3-030-52119-6_16](https://doi.org/10.1007/978-3-030-52119-6_16).

Veröffentlichungen in Tagungsbänden

- [1] C. Clason, Y. Deng, P. Mehlitz und U. Prüfert. A penalization scheme for the numerical solution of optimal control problems with control complementarity constraints. *PAMM*, 1–2, 2019. doi:[10.1002/pamm.201900122](https://doi.org/10.1002/pamm.201900122).

Preprints

- [5] S. Dempe und P. Mehlitz. Duality-based single-level reformulations of bilevel optimization problems. *Preprint arXiv*, Seiten 1–35, 2024. eingereicht bei Journal of Optimization Theory and Applications. URL: <https://arxiv.org/abs/2405.07672>.

- [4] M. Benko und P. Mehlitz. Isolated calmness of perturbation mappings in generalized nonlinear programming and local superlinear convergence of Newton-type methods. *Preprint arXiv*, Seiten 1–33, 2024. eingereicht bei Journal of Optimization Theory and Applications. URL: <https://arxiv.org/abs/2401.08163>.
- [3] S. Dempe, M. Friedemann, F. Harder, P. Mehlitz und G. Wachsmuth. Bilevel optimal control: theory, algorithms, and applications. *Preprint arXiv*, Seiten 1–30, 2023. Buchkapitel für Sammelband. URL: <https://arxiv.org/abs/2305.19786>.
- [2] C. Kanzow, F. Krämer, P. Mehlitz, G. Wachsmuth und F. Werner. Variational Poisson denoising via augmented Lagrangian methods. *Preprint arXiv*, Seiten 1–38, 2023. eingereicht bei ETNA. URL: <https://arxiv.org/abs/2304.06434v2>.
- [1] S. Göttlich, P. Mehlitz und T. Schillinger. Inverse demand tracking in transportation networks. *Preprint arXiv*, Seiten 1–31, 2022. eingereicht bei Mathematics of Operations Research. URL: <https://arxiv.org/abs/2212.11560v3>.

Dissertationsschrift

- [1] P. Mehlitz. *Contributions to complementarity and bilevel programming in Banach spaces*. Promotionsschrift, Technische Universität Bergakademie Freiberg, 2017. URL: <https://tubaf.qucosa.de/api/qucosa%3A23128/attachment/ATT-0/>.

Habilitationsschrift

- [1] P. Mehlitz. *On implicit variables and related topics in mathematical optimization*. Habilitationsschrift, BTU Cottbus-Senftenberg, 2021. URL: <https://opus4.kobv.de/opus4-btu/frontdoor/index/index/docId/5529>, doi:10.26127/BTUOpen-5529.