

List of publications of

Mihály Csaba Markót

(with downloadable manuscripts)

Dissertation and book

- [1] M. C. Markót: Garantált megbízhatóságú globális optimalizálási módszerek továbbfejlesztése korlátozásos feladatokra és alkalmazásuk körpakolási feladatok megoldása esetén (In Hungarian. English title: Reliable Global Optimization Methods for Constrained Problems and Their Application for Solving Circle Packing Problems). PhD dissertation. Szeged, 2003. [pdf](#)
- [2] P. G. Szabó, M. C. Markót, T. Csentes, E. Specht, L. G. Casado, and I. García: New Approaches to Circle Packing in a Square. Springer Optimization and Its Applications (6), Springer, 2007.

Papers

- [3] M. C. Markót and H. Schichl. Comparison and automated selection of local optimization solvers for interval global optimization methods. SIAM J. Optimization 21, 1371–1391, 2011. [pdf](#)
- [4] H. Schichl and M. C. Markót. Algorithmic Differentiation Techniques for Global Optimization in the COCONUT Environment. Optimization Methods and Software, to appear. DOI: 10.1080/10556788.2010.547581. [pdf](#)
- [5] C. Menon, R. Vertechy, M. C. Markót and V. Parenti-Castelli. Geometrical optimization of parallel mechanisms based on natural frequency evaluation: application to a spherical mechanism for future space applications. IEEE Transactions on Robotics 25(1), 12–24, 2009. [pdf](#)
- [6] J. Balogh, J. Békési, G. Galambos, and M. C. Markót. Improved lower bounds for semi-online bin packing problems. Computing 84, 139–148, 2009. [pdf](#)
- [7] E. R. Frits, M. C. Markót, Z. Lelkes, Zs. Fonyó, T. Csentes, and E. Rév: Use of an interval global optimization tool for exploring feasibility of batch extractive distillation. J. Global Optimization 38, 297–313, 2007. [pdf](#)
- [8] M. C. Markót: Interval Methods for Verifying Structural Optimality of Circle Packing Configurations in the Unit Square. J. Computational and Applied Mathematics 199, 353–357, 2007. [pdf](#)
- [9] E. R. Frits, M. C. Markót, T. Csentes, Z. Lelkes, Zs. Fonyó, and E. Rév: Finding limiting flows of batch extractive distillation with interval arithmetic. Am. Inst. Chem. Eng. (AIChE) J. 52, 3100–3108, 2006. [pdf](#)
- [10] M. C. Markót and T. Csentes: A Reliable Area Reduction Technique for Solving Circle Packing Problems. Computing 77, 147–162, 2006. [pdf](#)

- [11] M. C. Markót, J. Fernández, L. G. Casado, and T. Csentes: New interval methods for constrained global optimization. *Mathematical Programming* 106, 287–318, 2006. [pdf](#)
- [12] D. Izzo, M. C. Markót, and I. Nann: A distributed global optimiser applied to the design of a constellation performing radio-occultation measurements. *Advances in the Astronautical Sciences 120 – Spaceflight Mechanics 2005*, 739–748, 2005. [pdf](#)
- [13] M. C. Markót and T. Csentes: A New Verified Optimization Technique for the “Packing Circles in a Unit Square” Problems. *SIAM J. Optimization* 16, 193–219, 2005. [pdf](#)
- [14] M. C. Markót: Optimal Packing of 28 Equal Circles in a Unit Square – the First Reliable Solution. *Numerical Algorithms* 37, 253–261, 2004. [pdf](#)
- [15] M. C. Markót: An Interval Method to Validate Optimal Solutions of the “Packing Circles in a Unit Square” Problems, *Central European Journal of Operational Research* 8, 63–78., 2000. [pdf](#)
- [16] M. C. Markót, T. Csentes, and A. E. Csallner: Multisection in Interval Branch-and-Bound Methods for Global Optimization II. Numerical Tests, *J. Global Optimization* 16, 219–228, 2000. [pdf](#)
- [17] A. E. Csallner, T. Csentes, and M. C. Markót: Multisection in Interval Branch-and-Bound Methods for Global Optimization I. Theoretical Results, *J. Global Optimization* 16, 371–392, 2000. [pdf](#)

Chapters of books

- [18] M. Kieffer, M. C. Markót, H. Schichl, and E. Walter. Verified global optimization for estimating the parameters of nonlinear models. In: *Modeling, Design, and Simulation of Systems with Uncertainties* (ed.: A. Rauh and E. Auer), Chapter 7, to appear, 2011. [pdf](#)
- [19] P. G. Szabó, M. C. Markót, and T. Csentes: Global Optimization in Geometry – Circle Packing into the Square. In: *Essays and Surveys in Global Optimization* (ed.: C. Audet, P. Hansen, and G. Savard) pp. 233–266, Kluwer, Dordrecht, 2005. [pdf](#)

Conference proceedings

- [20] D. Izzo and M. C. Markót: A Distributed Global Optimisation Environment for the European Space Agency Internal Network. *Proc. GO 05 – International Workshop on Global Optimization*, pp. 141–146, San José – Almería, Spain, 2005.
- [21] E. R. Frits, A. Baharev, Z. Lelkes, M. C. Markót, Zs. Fonyó, E. Rév, and T. Csentes: Application of interval arithmetics for exploring feasibility of extractive distillation variants. *Proc. GO 05 – International Workshop on Global Optimization*, pp. 103–108, San José – Almería, Spain, 2005.
- [22] J. Balogh, J. Békési, G. Galambos, and M. C. Markót: Analysis of a nonlinear optimization problem related to semi-on-line bin packing problems. *Proc. GO 05 – International Workshop on Global Optimization*, pp. 29–34, San José – Almería, Spain, 2005.

- [23] E. R. Frits, M. C. Markót, T. Csendes, Z. Lelkes, Z. Fonyó, E. Rév, Use of Interval Optimization for finding Limiting Flows of Batch Extractive Distillation. Proc. European Symposium On Computer Aided Process Engineering - 15, Barcelona, Spain, pp. 661–666, Eds: L. Puigjaner, A. Espuna. Elsevier, 2005.
- [24] E. R. Frits, E. Rév, Z. Lelkes, M. C. Markót, and T. Csendes: Feasibility study of batch extractive distillation with an interval-arithmetic based optimization method (in Hungarian). Proc. MKN '04 (Days of Chemical Engineering), MÜKKI, pp. 306–309, Veszprém, Hungary, 2004.
- [25] E. R. Frits, E. Rév, Z. Lelkes, M. C. Markót, and T. Csendes: Application of an interval optimization method for studying feasibility of batch extractive distillation. Proc. of the 6th International Conference on Applied Informatics, pp. 305–314, Eger, Hungary, 2004. pdf

Conference abstracts

- [26] M. C. Markót and H. Schichl: Bound constrained interval global optimization in the COCONUT Environment. Abstracts of the Conference on Simulation and Optimization, pp. 35, Győr, 2011.
- [27] M. C. Markót and H. Schichl: A Bound Constrained Interval Global Optimization Solver in the COCONUT Environment. Abstracts of the SIAM Conference on Optimization, pp. 88, Darmstadt, 2011.
- [28] H. Schichl and M. C. Markót: Exclusion Regions for Global Optimization Problems. Abstracts of the SIAM Conference on Optimization, pp. 88, Darmstadt, 2011.
- [29] M. C. Markót and H. Schichl: Bound constrained interval global optimization in the COCONUT Environment. Abstracts of the IMACS/GAMM SCAN-2010 Conference, pp. 94–95, Lyon, 2010.
- [30] H. Schichl and M. C. Markót: Exclusion regions for optimization problems. Abstracts of the IMACS/GAMM SCAN-2010 Conference, pp. 126–127, Lyon, 2010.
- [31] M. C. Markót and H. Schichl: Bound constrained global optimization in the COCONUT Environment. Abstracts of the 7th International Conference on Computational Management Science, pp. 21, Vienna, 2010.
- [32] H. Schichl and M. C. Markót: Exclusion regions for optimization problems. Abstracts of the 7th International Conference on Computational Management Science, pp. 30, Vienna, 2010.
- [33] T. Csendes, L. Pál, and M. C. Markót: A Global Optimization Algorithm for Intlab. Abstracts of the IMACS/GAMM SCAN-2008 Conference, pp. 31–32, El Paso, Texas, 2008.
- [34] M. C. Markót, A. B. Kocsis, and A. E. Csallner: Interval methods for solving structural design problems in civil engineering (in Hungarian). Abstracts of the XXVII. Hungarian Operational Research Conference, Balatonőszöd, 2007.

- [35] M. C. Markót, A. B. Kocsis, and A. E. Csallner: Interval global optimization methods for design problems in civil engineering. Abstracts of the IMACS/GAMM SCAN-2006 Conference, pp. 91–92, Duisburg, 2006.
- [36] D. Izzo, I. Nann, and M.C. Markót: Parallel computing of the optimal geometry of a constellation performing radio-occultation measurements. Abstracts of the 15th AAS/AIAA Space Flight Mechanics Conference, pp. 35., Copper Mountain, Colorado, 2005.
- [37] M. C. Markót and T. Csendes: A Reliable Method for Verifying Structural Optimality of Circle Packing Configurations in the Unit Square. Abstracts of the IMACS/GAMM SCAN-2004 Conference, pp. 81, Fukuoka, 2004.
- [38] M. C. Markót and T. Csendes: A reliable method for determining the densest packings of 28, 29 and 30 congruent circles in the unit square (in Hungarian). Abstracts of the XXVI. Hungarian Operational Research Conference, Győr, 2004.
- [39] Erika R. Frits, Endre Rév, Zoltán Lelkes, Mihály Markót, and Tibor Csendes: Application of an interval optimization method for studying feasibility of batch extractive distillation. Abstracts of the 6th International Conference on Applied Informatics, Eger, 2004.
- [40] M. C. Markót and T. Csendes: The densest packings of 28, 29 and 30 congruent circles in the unit square - a reliable optimality proof. Abstracts of the 18th International Symposium on Mathematical Programming, pp. 152., Copenhagen, 2003.
- [41] M. C. Markót: Interval-based Computer Assisted Optimality Proofs for Circle Packing Problems. Abstracts of the First Scandinavian Workshop on Interval Methods and Their Applications, Copenhagen, 2003.
- [42] M. C. Markót: A Reliable Computer Method for the “Packing Circles in a Unit Square” Problems. Abstracts of the 4th International Conference on Frontiers in Global Optimization, pp. 85, Santorini, 2003.
- [43] M. C. Markót: Improved Methods for Solving ”Packing of Equal Circles into the Unit Square” Problems. Abstracts of the Dagstuhl Seminar ’Numerical Software with Result Verification’, Dagstuhl, 2003.
- [44] M. C. Markót: Improved Methods for Solving “Packing Circles in a Unit Square” Problems with an Interval B&B Algorithm. Abstracts of the IMACS/GAMM SCAN-2002 Conference, pp. 116-117., Paris, 2002.
- [45] M. C. Markót, J. F. Hernández, and L. G. Casado: New Interval Methods for Constrained Global Optimization: Solving ‘Circle Packing’ Problems in a Reliable Way. Abstracts of the CSCS-2002 Conference, pp. 73-74., Szeged, 2002.
- [46] M. C. Markót, T. Csendes, J. F. Hernández, and L. G. Casado: A Numerical Study on a New Heuristical Decision Index for Interval Global Optimization. Extended abstracts of Validated Computing — a SIAM Workshop, pp. 112-113., Toronto, 2002.
- [47] M. C. Markót, T. Csendes, J. F. Hernández, and L. G. Casado: New Interval Methods for Constrained Global Optimization. Abstracts of the 2002 SIAM Conference of Optimization, pp. 99., Toronto, 2002.

- [48] M. C. Markót, T. Csentes, F. Schell, and A. Szabó: On a Cutting Problem from the Steel Industry (in Hungarian). Abstracts of the XXV. Hungarian Operational Research Conference, pp. 69., Debrecen, 2001.
- [49] M. C. Markót, T. Csentes, J. F. Hernández, and L. G. Casado: New Interval Methods for Constrained Global Optimization (in Hungarian). Abstracts of the XXV. Hungarian Operational Research Conference, pp. 70., Debrecen, 2001.
- [50] J. F. Hernández, L. G. Casado, T. Csentes, and M. C. Markót: Solving continuous location problems via Interval Analysis: A new selection criteria. Volume of abstracts of the EWGLA XII Meeting, Barcelona, 2000.
- [51] J. F. Hernández, L. G. Casado, T. Csentes, and M. C. Markót: Solving continuous location problems via Interval Analysis: A new adaptive multisection rule. Volume of abstracts of the EWGLA XII Meeting, Barcelona, 2000.
- [52] M. C. Markót: Interval Methods for Solving Packing Circle Problems. Abstracts of the IMACS/GAMM SCAN-2000 Conference, pp. 154-155, Karlsruhe, 2000.
- [53] M. C. Markót, P. G. Szabó, B. Tóth, and T. Vinkó: Verification Solutions of Packing Circle Problems. Abstracts of the CSCS-2000 Conference, pp. 69, Szeged, 2000.
- [54] M. C. Markót, P. G. Szabó, B. Tóth, and T. Vinkó: Verification Solutions of Packing Circle Problems. Abstracts of the EURO-2000 Conference, Budapest, 2000.
- [55] M. C. Markót: A Reliable Algorithm for Verifying Optimal Solutions of Circle Packing Problems (in Hungarian). Abstracts of the XXIV. Hungarian Operational Research Conference, Veszprém, 1999.
- [56] M. C. Markót: An Interval Method to Validate Solutions of the Packing Circles Problems. Abstracts of the XIV. ICMP Conference, Mátraháza, 1999.
- [57] A. E. Csallner and M. C. Markót: Termination Criteria and the Objective Functions Lipschitz Continuity by Interval Subdivision Methods. Abstracts of the IMACS/GAMM SCAN-98 Conference, pp. 25, Budapest, 1998.
- [58] A. E. Csallner, T. Csentes, and M. C. Markót: Convergence Properties for Multisplitting Interval Methods in Global Optimization. Abstracts of the IMACS/GAMM SCAN-97 Conference, pp. V5-V8, Lyon, 1997.
- [59] T. Csentes, M. C. Markót, and A. E. Csallner: Multisection in Interval Methods for Global Optimization. Abstracts of the IMACS/GAMM SCAN-97 Conference, pp. V9-V12, Lyon, 1997.
- [60] T. Csentes, M. C. Markót, and A. E. Csallner: Multisection in Interval Methods for Global Optimization. Abstracts of the ismp97, pp. 69. Lausanne, 1997.
- [61] A. E. Csallner, T. Csentes, and M. C. Markót: Convergence properties for Multisplitting Interval Subdivision Rules for Global Optimization (in Hungarian). Abstracts of the XXIII. Hungarian Operational Research Conference, pp. 18. Pécs, 1997.

- [62] M. C. Markót, T. Csendes, and A. E. Csallner: Multisection Rules in Interval-based Global Optimization Algorithms (in Hungarian). Abstracts of the XXIII. Hungarian Operational Research Conference, pp. 39. Pécs, 1997.

Other publications

- [63] M. C. Markót: SMPL – A Simplified Modeling Language for Mathematical Programming. Working paper, University of Vienna, 2008.
www.mat.univie.ac.at/~markot/smpl.pdf pdf
- [64] M. C. Markót: The ACT Distributed Computing Environment v. 2.3. — Administrator’s Guide and Instructions for Further Development. A Scientific and Technical Report of the European Space Agency, STR-253, Noordwijk, The Netherlands, 2007.
- [65] M. C. Markót: New Interval Methods for Constrained Global Optimization (in Hungarian). An essay for the competition of young researchers at the XXV. Hungarian Operational Research Conference, Debrecen, 2001.
- [66] M. C. Markót: On a Cutting Problem from the Steel Industry (in Hungarian). An essay for the competition of young researchers at the XXV. Hungarian Operational Research Conference, Debrecen, 2001.
- [67] T. Csendes and M. C. Markót: On a cutting stock problem of the metal industry (in Hungarian), KÉSZ Ltd., Szeged, 2000.
- [68] T. Csendes and M. C. Markót: On a cutting stock problem of the metal industry II (in Hungarian), KÉSZ Ltd., Szeged, 2000.
- [69] M. C. Markót and P. G. Szabó: New Theoretical and Computational Results for the Problem of Densest Packings of Equal Circles in the Square (in Hungarian). A competition essay for the call of the Academic Committee of Szeged, 1999.
- [70] M. C. Markót: A Method for Solving ‘Circle Packing Problems’ with Guaranteed Accuracy (in Hungarian). Hungarian Student Research Contest (OTDK), 1999.
- [71] M. C. Markót: Multisection Strategies in Interval Global Optimization Algorithms (in Hungarian). Hungarian Student Research Contest (OTDK), 1997.