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Research interests

Constraint Satisfaction: algorithms and computational complexity.
Universal algebra, combinatorics, model theory, Ramsey theory.

Qualifications

Mathematics, Habilitation, Universite Paris 7
Award Date: 19 Jan 2012

Employment

Academic Staff

Chair of Algebra and Discrete Structures
Technische Universität Dresden
1 Aug 2014 → present

Academic Staff

Faculty of Computer Sciences
Technische Universität Dresden
1 Aug 2014 → present

Research outputs

The Complexity of Resilience Problems via Valued Constraint Satisfaction Problems
Bodirsky, M., Semanišinová, Ž. & Lutz, C., 27 Sept 2023.

Forbidden Tournaments and the Orientation Completion Problem
Bodirsky, M. & Guzmán-Pro, S., 15 Sept 2023.

The smallest hard trees

Bodirsky, M., Bulín, J., Starke, F. & Wernthaler, M., Jun 2023, In: Constraints. 28, 2, p. 105–137 33 p.

Network Satisfaction Problems Solved by k-Consistency

Bodirsky, M. & Knäuer, S., 25 Apr 2023.

On the Descriptive Complexity of Temporal Constraint Satisfaction Problems.

Bodirsky, M. & Rydval, J., Feb 2023, In: Journal of the ACM. 70, 1, p. 1-58 58 p., 3566051.

Complexity Classification Transfer for CSPs via Algebraic Products

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Spectrahedral Shadows and Completely Positive Maps on Real Closed Fields

Bodirsky, M., Kummer, M. & Thom, A., 13 Jun 2022.

The Smallest Hard Trees

Bodirsky, M., Bulín, J., Starke, F. & Wernthaler, M., 16 May 2022.

Asymptotic Theories of Classes Defined by Forbidden Homomorphisms

Bodirsky, M. & Jahel, C., 4 Apr 2022.

Piecewise Linear Valued CSPs Solvable by Linear Programming Relaxation

Bodirsky, M., Mamino, M. & Viola, C., 1 Jan 2022, In: ACM transactions on computational logic. 23, 1, p. 7:1-7:35 35 p., 1.

Maximal Digraphs with Respect to Primitive Positive Constructability

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The Complexity of Network Satisfaction Problems for Symmetric Relation Algebras with a Flexible Atom

Bodirsky, M. & Knäuer, S., 2022, In: J. Artif. Intell. Res.. 75, p. 1701-1744 44 p.

Solving equation systems in ω -categorical algebras

Bodirsky, M. & Quinn-Gregson, T., 1 Dec 2021, In: Journal of Mathematical Logic : JML. 21, 3, 2150020.

Smooth digraphs modulo primitive positive constructability and cyclic loop conditions

Bodirsky, M., Starke, F. & Vucaj, A., Aug 2021, In: International journal of algebra and computation. 31, 5, p. 929-967 39 p.

Complexity of Infinite-Domain Constraint Satisfaction

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Canonical functions: A proof via topological dynamics

Bodirsky, M. & Pinsker, M., 29 Jun 2021, In: Contributions to Discrete Mathematics : CDM. 16, 2, p. 36-45 10 p.

Introduction to constraint satisfaction problems

Bodirsky, M., 28 May 2021, *Complexity of Infinite-Domain Constraint Satisfaction*. 52 p.

PROJECTIVE CLONE HOMOMORPHISMS

Bodirsky, M., Pinsker, M. & Pongrácz, A., Mar 2021, In: The journal of symbolic logic. 86, 1, p. 148-161 14 p.

Permutation groups with small orbit growth

Bodirsky, M. & Bodor, B., 20 Jan 2021, In: Journal of Group Theory. 24, 4, p. 643-709 67 p.

ω -categorical structures avoiding height 1 identities

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A proof of the algebraic tractability conjecture for monotone monadic SNP

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Canonical Polymorphisms of Ramsey Structures and the Unique Interpolation Property.

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Datalog-Expressibility for Monadic and Guarded Second-Order Logic

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120:17 17 p.

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On Logics and Homomorphism Closure

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Piecewise linear valued constraint satisfaction problems with fixed number of variables

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Tractable Combinations of Theories via Sampling

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The Complexity of Combinations of Qualitative Constraint Satisfaction Problems

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Tractable Combinations of Temporal CSPs.

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Topology is relevant (in a dichotomy conjecture for infinite-domain constraint satisfaction problems)

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The complexity of disjunctive linear diophantine constraints

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Complexity of Combinations of Qualitative Constraint Satisfaction Problems

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Finite relation algebras with normal representations

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A model-theoretic view on qualitative constraint reasoning

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Constraint Satisfaction Problems over Numeric Domains.

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Reducts of structures and maximal-closed permutation groups

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Distance constraint satisfaction problems

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Max-closed semilinear constraint satisfaction

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Schaefer's theorem for graphs

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TOPOLOGICAL BIRKHOFF

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Tractable Set Constraints.

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Constraint Satisfaction Problems with Infinite Templates.

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The Complexity of Equality Constraint Languages

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Oligomorphic clones

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Enumeration and Asymptotic Properties of Unlabeled Outerplanar Graphs

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Enumeration and limit laws for series-parallel graphs

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On the logical complexity of convex polygon dissections

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The Core of a Countably Categorical Structure
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A new algorithm for normal dominance constraints.
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Efficiently Computing the Density of Regular Languages.
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Constraint Satisfaction with Countable Homogeneous Templates
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Activities

Wiley Online Library (Publisher)

Bodirsky, M. (Reviewer)
1 Jan 2023 → 31 Dec 2028

Prizes

DFG-Promotionsstipendium

Bodirsky, Manuel (Recipient), 2001

ERC Consolidator Grant

Bodirsky, Manuel (Recipient), 2016

ERC Starting Grant

Bodirsky, Manuel (Recipient), 2011

Günter-Holz-Medaille

Bodirsky, Manuel (Recipient), 2001

POCOCOP

Bodirsky, Manuel (Recipient), Barto, Libor (Recipient) & Pinsker, Michael (Recipient), 25 Oct 2022