Thomas Yahl

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Profile

I am a Ph.D. student at Texas A&M University working in applied and computational algebraic geometry, advised by Dr. Frank Sottile. My mathematical interests include Galois theory in enumerative geometry, computational algebraic geometry, and real algebraic geometry.

Education

(2017-Present) Texas A&M University
Ph.D. Mathematical Sciences

(2013-2017) Indiana University-Purdue University of Indianapolis
B.A. Mathematical Sciences (Honors)
Minor Computer Science

Publications

"Computing Galois Groups of Finite Fano Problems", 2022. arxiv:2209.07010.
In preparation.

"Real Solutions to Systems of Polynomial Equations in Macaulay2", 2022.
arxiv:2208.05576. Submitted.

"Galois Groups in Enumerative Geometry and Applications", 2021. arxiv:2108.07905.
Being revised for publication.

"Polyhedral Homotopies in Cox Coordinates", 2020. arxiv:2012.04255. Submitted.

"Decomposable Sparse Polynomial Systems", Journal of Software for Algebra and Geometry Vol. 11 (2021), 53-59.

"Solving Decomposable Sparse Systems", Numerical Algorithms **88**, 453-474 (2021).

Eigenfunctions to Composition Operators of Generalized Linear Fractional Maps, 2015.
Presented at Indiana Undergraduate Math Research Conference.

Talks

Georgia Tech Algebra Seminar, "Solving decomposable sparse polynomial systems"

Ohio State University Algebraic Geometry Seminar, "Computing Galois groups of finite Fano problems"

Texas A&M University Geometry Seminar, "Computing Galois groups of finite Fano problems"

Effective Methods in Algebraic Geometry 2022, "Computing Galois grouops of finite Fano problems"

Texas A&M University Geometry Seminar, "Solving decomposable sparse polynomial systems"

Joint Mathematics Meetings 2022, "Parameter Homotopies in Cox Coordinates"

SIAM TX-LA Section Fourth Annual Meeting, "Parameter Homotopies in Cox Coordinates"

SIAM Conference on Applied Algebraic Geometry, "Cox Homotopies"

Freie Universität, Discrete Geometry Seminar, "Solving Decomposable Sparse Polynomial Systems"

Max-Planck-Institut für Mathematik, Seminar on Nonlinear Algebra, "Solving Decomposable Sparse Polynomial Systems"

Technische Universität Braunschweig, Oberseminar Applied Algebra and Analysis, "Solving Decomposable Sparse Polynomial Systems"

Technische Universität Berlin, Kolloquium on algorithmic mathematics and complexity theory, "Solving Decomposable Sparse Polynomial Systems"

SIAM TX-LA Section Second Annual Meeting, "Galois Groups and Decomposable Branched Covers"

Teaching and Duties

Texas A&M University (Evaluations available upon request):

- Instructor of Record for Algebra Qualifying Exam Prep Course. Summer 2022.
- Instructor of Record for Math 168: Finite Mathematics. Fall 2021.
- Instructor of Record for Algebra Qualifying Exam Prep Course. Summer 2021.
- TA for Math 152: Calculus II for Engineering. Spring 2021.
- TA for Math 151: Calculus I for Engineering. Fall 2020.

- Instructor of Record for Math 142: Business Calculus. Summer 2020.
- TA for Math 148: Calculus II for Chemistry and Biological Sciences. Fall 2019.
- Graduate Assistant for Texas A&M University REU. Summer 2019.
- TA for Math 152: Calculus II for Engineering. Spring 2019.
- TA for Math 148: Calculus II for Chemistry and Biological Sciences. Fall 2018.

Honors and Awards

Recipient of TAMU AFS Merit Fellowship in Mathematics

Supervised undergraduates in Mathematics REU programs at Texas A&M University

Recipient of Outstanding TA Award at Texas A&M University

Mentored in the graduate student Peer Mentoring Program at Texas A&M University

Secretary of the Texas A&M University chapter of the AMS

Fourth prize & Best use of additional data prize, Texas A&M University Institute of Data Science 2022 Data Science Competition