Vance T. Blankers

(605) 212-8055
v.blankers@northeastern.edu
`https://blankersv.com`

Academic Employment

Zelevinksy-RTG Postdoctoral Fellow   Fall 2019 – Present
    Northeastern University   Boston, MA

Research Interests

Moduli of Curves; Moduli Spaces; Combinatorial Algebraic Geometry; Birational Geometry; Enumerative Geometry

Education

Doctorate of Philosophy in Mathematics   May 2019
    Colorado State University (CSU)   Fort Collins, CO
       Thesis: *Properties of tautological classes and their intersections*
       Advisor: Dr. Renzo Cavalieri

Bachelor of Arts in Mathematics Minor in Physics   May 2012
    Concordia College   Moorhead, MN
       Credo Honors Scholar, Summa Cum Laude

Papers

Published

V. Blankers, R. Cavalieri. *Witten's conjecture and recursions for κ classes*, European Journal of Mathematics (2021), 3, 309–339.

V. Blankers, R. Cavalieri. *Wall-crossings for Hassett descendant potentials*, International Mathematics Research Notices (2020), doi:10.1093/imrn/rnaa077.

V. Blankers. *Hyperelliptic classes are rigid and extremal in genus two*, Épijournal de Géométri Algébrique, Volume 4 (2020), Article no.2.

V. Blankers. *Properties of tautological classes and their intersections*, Dissertation, Colorado State University (2019).

V. Blankers, T. Rendfrey, A. Shukert, P. Shipman. *Julia and Mandelbrot sets for dynamics over the hyperbolic numbers*, Fractal Fract (2019), 3(1), 6.

V. Blankers, R. Cavalieri. *Intersections of ω classes in $\overline{\mathcal{M}}_{g,n}$*, Proceedings of Gökova Geometry-Topology Conference (2018).

Submitted

V. Blankers. *Extremality of rational tails boundary strata in $\overline{\mathcal{M}}_{g,n}$*, available at arXiv:2002.12403.

In Progress

V. Blankers, S. Bozlee. *A classification of Gorenstein compactifications of $\mathcal{M}_{1,n}$ with colliding markings*.

V. Blankers, S. Bozlee. *Intersections of ψ-classes on Gorenstein compactifications of $\mathcal{M}_{0,n}$ and $\mathcal{M}_{1,n}$*.

Teaching

Northeastern University	Boston, MA
MATH 7363 – Introduction to Moduli Spaces	Fall 2021
MATH 3175 – Group Theory	Fall 2020
DATA SCIENCE 2001 – Programming with Data: Science Practicum	Spring 2020
MATH 1365 – Introduction to Mathematical Reasoning	Fall 2019
Colorado State University	Fort Collins, CO
MATH 271, 272 – Applied Math for Chemists	Fall 2017 – Spring 2019
MATH 317 – Advanced Calculus of One Variable	Summer 2016
MATH 255 – Calculus for Biological Scientists II	Spring 2016, Fall 2016
MATH 161 – Calculus for Physical Scientists II	Fall 2015, Spring 2019
MATH 180 – One Year Calculus I	Fall 2014 – Spring 2015
MATH 155 – Calculus for Biological Scientists I	Fall 2013, Spring 2014

Additional Experience

ClearEdge3D, Research and Development Intern	Denver, CO
Algorithm Development and Implementation	Summer 2019
Cargill, Inc.; Statistical Analysis Intern	Wayzata, MN
Statistical Modeling; Large Data Analysis, Interpretation, and Prediction	Summer 2012

Conference and Seminar Talks

Invited

(Upcoming) *Tropicalizing compactifications of $\mathcal{M}_{0,n}$*	March 2022
AMS Special Session on Moduli in Algebraic and Tropical Geometry. Medford, MA	
(Upcoming) *Classifying compactifications of $\mathcal{M}_{g,n}$*	November 2021
Valley Geometry Seminar at UMass Amherst. Amherst, MA	
Alternative compactifications of the moduli space of curves	September 2021
Virginia Commonwealth University G&T Seminar. Richmond, VA	
Alternative compactifications of the moduli space of curves	September 2021
Simon Fraser University NTAG Seminar. Burnaby, BC	
Extremality of rational tails strata in $\overline{\mathcal{M}}_{g,n}$	October 2020
Boston College NT & AG Seminar. Boston, MA	
Extremal strata in $\overline{\mathcal{M}}_{g,n}$	May 2020
FRAGMENT Seminar. Fort Collins, CO	
Wall-crossings for descendant potentials on Hassett spaces	January 2020
AMS Special Session on Cohomological Field Theories and Wall Crossing. Denver, CO	
Witten's conjecture and recursions for κ classes	November 2018
Geometry, Physics, and Representation Theory Seminar. Boston, MA	
Descendant potentials for Hassett spaces with diagonal weights	May 2018
Crossing the Walls in Enumerative Geometry conference. Snowbird, UT	
Witten's conjecture for κ-classes	April 2018
AMS Sectional; Special meeting on Moduli Spaces. Portland, OR	
Combinatorial structures in moduli spaces of stable pointed curves	February 2018
SF State Geometry & Topology Seminar. San Francisco, CA	

Contributed

(Upcoming) *Compactifying moduli spaces* — October 2021
NU Pick My Brain Seminar. Boston, MA

The triangle of triangles — March 2021
NU Math Club. Boston, MA

Life after graduate school — September 2020
CSU AMS Alumni Series. Fort Collins, CO

The tautological ring of the moduli space of curves — September 2019
NU Pick My Brain Seminar. Boston, MA

The Witten conjecture for κ-classes on the moduli space of curves — January 2019
Joint Math Meetings. Baltimore, MD

Descendant potentials on Hassett spaces and the Witten conjecture for κ-classes — September 2018
FRAGMENT Seminar. Fort Collins, CO

Hyperelliptic classes are rigid and extremal in genus two — January 2018
Joint Math Meetings. San Diego, CA

Hyperelliptic classes are rigid and extremal in genus two (poster) — October 2017
Western Algebraic Geometry Symposium. Los Angeles, CA

The recursive structure of hyperelliptic loci in moduli spaces of curves — September 2017
FRAGMENT Seminar. Fort Collins, CO

Greenslopes Graduate Seminar (CSU)

Alice and Bob: a Love Story	February 2019
Career Killers - Fun Problems to Avoid	September 2018
Some Differential Equations in Enumerative Geometry	February 2018
Impossible Things and Where to Find Them	August 2017
Topological Primes	February 2017
Obstructions and Pathologies	October 2016
Fat Points Nowhere and Everywhere: a Brief Introduction to Schemes	February 2016
Graph Theory on the Moduli Space of Curves	September 2015
The Double Ramification Cycle	April 2015
Counting Curves, Stable Maps, and Gromov-Witten Invariants	September 2014

Splinter Graduate Seminar (CSU)

Schemes and You	February 2019
The tautological ring of the moduli space of curves	September 2018
A differential operator on generating functions of intersection numbers	October 2017
Stick-figure Reproduction (and Graph Multiplication)	March 2017
Hyperelliptic Curve Classes on $\overline{\mathcal{M}}_{g,n}$	October 2016

Category Theory Lab (CSU)

Sheaves in category theory and algebraic geometry	October 2018
Moduli problems	July 2018

Mathematical Physics Lab (CSU)

Introduction to Minkowski space	February 2019

Solving Problems in Applied Math Lab (CSU)

Mandelbrot and Julia sets over the hyperbolic numbers	October 2018

Workshops

Co-organized

(Pending) Combinatorics of Moduli of Curves — Summer 2023
    Banff International Research Station, Alberta, Canada

Attended

Riemann Surfaces and Their Moduli Spaces — February 2020
    Salt Lake City, UT
Stability, Moduli Spaces and Applications — December 2019
    Chicago, IL
Flat Surfaces and Algebraic Curves — September 2018
    Oberwolfach, Germany
Crossing the Walls in Enumerative Geometry — May 2018
    Snowbird, UT
University of Georgia Summer Workshop in Algebraic Geometry — August 2016
    Athens, GA
Summer School in Gromov-Witten Theory — June – July 2014
    Pingree Park, CO

Service

Organizing

Pick My Brain Seminar — Fall 2021 – Present
NU Summer Math Research Program REU — Summer 2021
Geometry, Physics, and Representation Theory Seminar — Fall 2020 – Present
Lunch in the Time of COVID Seminar — Summer 2020 – Present
Splinter Graduate Seminar — Spring 2018
Western Algebraic Geometry Seminar — Fall 2016
Mindful Mathematics Education, Learning, and Didactics — Fall 2015 – Spring 2016
FRAGMENT — Fall 2015
Greenslopes Graduate Seminar — Spring 2015

Mentoring

CSU Summer REU — Summer 2018
    Dynamics Over the Hyperbolic Numbers
Graduate Student Mentor — Fall 2016 – Spring 2018
CSU Graduate Student Representative — Fall 2016 – Spring 2017

Refereeing

Referee for Geometry & Topology — Summer 2020 – Present
Referee for Communications in Mathematical Physics — Summer 2020 – Present

Association Participation

American Mathematical Society (AMS) — Fall 2017 – Present
    CSU Student Chapter Treasurer — Fall 2017 – Spring 2019
Society of Applied and Industrial Mathematics — Fall 2013 – Spring 2019
    Student Chapter member

Other Outreach

Northern Colorado Math Circles (for Middle School Students)
    Session Facilitator
        Decomposing Compositions — Summer 2018