

STEVE J. TRETTEL

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ABOUT

Born:

| 1 March 1990
| Minnesota

Perm. Address:

| 23651 Drexel Ave
| Jordan, MN 55352

LANGUAGES



English



Dakhóta Iápi

POSITIONS

STANFORD UNIVERSITY ■ Fall 2019-
Szego Asst. Professor of Mathematics

ICERM ■ Fall 2019
Institute Postdoc, Illustrating Mathematics

EDUCATION

PHD. MATHEMATICS ■ June 2019
University of California, Santa Barbara
THESIS: Families of Geometries, Real Algebras, & Transitions
ADVISOR | Darren Long

MS. MATHEMATICS ■ 2015
University of California, Santa Barbara | GPA: 4.0

BS. MATHEMATICS ■ 2013
University of Minnesota, Twin Cities | GPA: 3.97
MINORS: Physics, Philosophy, Astrophysics, Linguistics
ADD'L EMPHASIS: Dakota Language

PAPERS

RIEMANNIAN LIMITS OF THE PRODUCT GEOMETRIES ■ 2019
In Preparation

THE SPACE OF ORTHOGONAL GROUPS & DEGENERATIONS ■ 2019
Preprint:

A TRANSITION OF COMPLEX HYPERBOLIC SPACE ■ 2019
Preprint:

FAMILIES OF GEOMETRIES & REAL ALGEBRAS ■ 2019
Preprint:

THE HEISENBERG PLANE ■ 2018
In Revision Post Review (AGT): <https://arxiv.org/abs/1805.04256>

AWARDS

- BERTELSEN DISSERTATION FELLOWSHIP ■ 2018-2019
- OUTSTANDING TEACHING AWARD, UCSB MATHEMATICS DEPT. ■ 2018
- EXCELLENCE IN TEACHING NOMINATION, ACADEMIC SENATE ■ 2018
- UC REGENTS FELLOWSHIP ■ 2015-2016
- EXCELLENCE IN TEACHING NOMINATION, GRAD STUDENT ASSC. ■ 2015
- UC REGENTS FELLOWSHIP ■ 2013-2014
- UOFM EXCELLENCE IN MATHEMATICS AWARD ■ 2013
- UOFM GOLD SCHOLARSHIP ■ 2008-2012
- INTEL SCHOLARSHIP ■ 2008
1st Place, International Science Fair (ISEF)
- DoD SCHOLARSHIP ■ 2006 & 2008
1st Place, National Science Fair (JSHS)

INVITED TALKS

- AMS SEC, UNIVERSITY OF VIRGINIA ■ 2020 (Forthcoming)
- UT AUSTIN ■ 2019 (Forthcoming)
- BROWN UNIVERSITY ■ 2019
Families of Geometries and Transitions
- ICERM TOPOLOGY & GEOMETRY WORKSHOP ■ 2019
Conformal Embeddings of Tori & The Geometry of Teichmüller Space
- HEIDELBERG UNIVERSITY ■ 2019
Families of Geometries and Transitions
- SANTA BARBARA MEDIA ARTS END OF YEAR SHOW ■ 2019
Life inside the Figure 8 Knot Complement
- UC IRVINE ■ 2019
Hyperbolic Geometry over Real Algebras
- STANFORD UNIVERSITY ■ 2019
Hyperbolic Geometry over Real Algebras
- UNIVERSITY OF VIRGINIA ■ 2019
The Category of Families of Geometries
- CORNELL UNIVERSITY ■ 2019
A Transition of Complex Hyperbolic Space
- UNIVERSITY OF MINNESOTA ■ 2019
A Transition of Complex Hyperbolic Space
- GEORGIA TECH ■ 2018
Complex Hyperbolic and Real Projective Triangle Groups
- GEORGIA TECH ■ 2018
Heisenberg Wallpaper
- SANTA BARBARA MEDIA ARTS END OF YEAR SHOW ■ 2018
Curved & Twisted Worlds: 3 manifolds in VR
- UIC, GRAD STUDENT TOPOLOGY CONFERENCE ■ 2018
Geometric Structures modeled on the Heisenberg Plane
- UCSB COMPUTATIONAL NEUROSCIENCE DEPT. ■ 2016
What is Topology? Spaces, Configurations & Dynamics

LOCAL SEMINAR TALKS

- FAMILIES OF GEOMETRIES, REAL ALGEBRAS, AND TRANSITIONS ■ 2019 (PhD Defense)
- RIEMANNIAN LIMITS OF THE PRODUCT GEOMETRIES ■ 2019
- USING "BLOW-UPS" TO RECORD LIMITING HIGHER-DERIVATIVE INFORMATION ■ 2019
- PROJECTIVE GEOMETRY OVER ALGEBRAS AND THE \mathbb{H}^3 TO AdS^3 TRANSITION ■ 2019
- A TRANSITION OF COMPLEX HYPERBOLIC SPACE ■ 2019
- THE CHABAUTY SPACE OF ORTHOGONAL GROUPS ■ 2019
- CONFORMAL EMBEDDINGS OF FLAT TORI IN \mathbb{R}^3 ■ 2018
- RENDERING INTERIORS OF GEOMETRIC 3-MANIFOLDS IN VR ■ 2018
- HOW IT FEELS TO GET MULTIPLIED BY A QUATERNION ■ 2017
- WAYS TO DIE IN HYPERBOLIC SPACE ■ 2017
- THE MANY FACES OF THE TREFOIL COMPLEMENT ■ 2017
- DAILY LIFE IN CONSTANT CURVATURE GEOMETRY ■ 2017
- WHAT DOES HOMOLOGY MEASURE? ■ 2016
- TESSELLATIONS & SEIFERT FIBRATIONS ■ 2016
- COVERS OF THE MODULAR SURFACE ■ 2015
- FLOWS ON THE SPACE OF LATTICES ■ 2015
- VISUALIZING ISOMETRY GROUPS ■ 2015
- POLYTOPES ON THE INTEGER LATTICE ■ 2014

CONFERENCES

- ILLUSTRATING ALGEBRA & NUMBER THEORY ■ ICERM, Brown University
- ILLUSTRATING GEOMETRY & TOPOLOGY ■ ICERM, Brown University
- YOUNG GEOMETRIC GROUP THEORY ■ Bilbao, Spain
- TECH TOPOLOGY ■ Georgia Tech
- THE ROOTS OF TOPOLOGY ■ UChicago
- TOPOLOGY STUDENTS' WORKSHOP ■ Georgia Tech
- THIN GROUPS IN GEOMETRY & TOPOLOGY ■ Rice
- GRAD STUDENT TOPOLOGY CONFERENCE ■ UIC
- LEE MOSHER'S BIRTHDAY CONFERENCE ■ Princeton

TEACHING

INSTRUCTOR OF RECORD ■ UCSB 2015 & 2016
Integral Calculus | 30-40 person classes | 6 week terms

TEACHING ASSISTANT ■ UCSB 2013-2018
Differential Calculus + Integral Calculus +
Linear Algebra + Vector Calculus +
Proof-Based Linear Algebra + Analysis

TEACHING ASSISTANT ■ UofM 2011-2013
College Algebra + Differential Calculus

SERVICE

SPEAKER, ORGANIZER & JUDGE: NATIONAL SCIENCE FAIR ■ 2015-
Judge mathematics projects at National Science Fair (JSHS), organize
STEM outings, give talks on mathematics, run career panel.

ORGANIZER, DIRECTED READING PROGRAM ■ 2018-2019
Applying for a grant to start a directed reading program, organizer and mentor

ORGANIZER, GRADUATE STUDENT TOPOLOGY SEMINAR ■ 2016-2019
Schedule & Give talks, run discussion groups.

SIMS TUTOR ■ UCSB 2018-2019
Tutor for program pairing graduate students with underrepresented students.

PROJECTS

GEOMETRICALLY CORRECT RENDERS OF \mathbb{H}^3 AND \mathbb{S}^3 ■ 2017-2019
Collaboration with Media Arts & Technology Department at UCSB.

RAYMARCHING VR FOR THURSTON GEOMETRIES ■ 2019
Collaboration with Henry Segerman, Sabetta Matsumoto et al

SOFTWARE FOR DRAWING CONVEX \mathbb{RP} STRUCTURES. ■ 2018-

SOFTWARE FOR DRAWING CURVES AND SURFACE IN \mathbb{S}^3 . ■ 2017-

LANGUAGE REVITALIZATION: DAKHÓTA ■ 2014-
Writing a grammar textbook.