

CURRICULUM VITAE – LEO S. HERR, PH.D.

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PERSONAL INFORMATION

Leo S. Herr
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ABOUT ME

My research is in Gromov-Witten Theory, Log Geometry, and Deformation Theory. I'm about to join Virginia Tech as an assistant professor.

EMPLOYMENT

Assistant Professor Virginia Tech (August 2024 –)

Postdoc Leiden University (September 1 2022 – 2024) Mentor: David Holmes

Wylie Assistant Professor (Postdoc), University of Utah (2019 – 2022) Mentor: Y.P. Lee

EDUCATION

Doctorate in Mathematics, CU Boulder (2014 – August 22 2019). Advisor: Jonathan Wise

Bachelors' in Mathematics and Philosophy, Stony Brook University (2011-2014)

The Clarkson School Early College Program, Clarkson University (2010-2011) Transferred.

RESEARCH

LOG GEOMETRY AND GROMOV-WITTEN THEORY

- *The log product formula*. Algebra and Number Theory (2023). [arXiv link](#). [Published version](#).
- *The log product formula in quantum K theory*. Joint with You-Cheng Chou and Yuan-Pin Lee. Mathematical Proceedings of the Cambridge Philosophical Society (2023). [arXiv link](#). [Published version](#).
- *Costello's pushforward formula: errata and generalization*. Joint with Jonathan Wise. Manuscripta Mathematica (2022). [arXiv link](#). [Published version](#).
- *The log tangent space of the log jet space*. To appear in Michigan Mathematical Journal. [arXiv link](#).
- *Higher Genus Quantum K-theory*. Joint with You-Cheng Chou and Y.P. Lee. [arXiv link](#).
- *Logarithmic Hochschild co/homology via formality of derived intersections*. Joint with Márton Hablicsek and Francesca Leonardi. [arXiv link](#).

NUMBER THEORY

- *The Scheme of Monogenic Generators I: Representability*. Joint with Sarah Arpin, Sebastian Bozlee, and Hanson Smith. Research in Number Theory (2023). [arXiv link](#). [Published version](#).
- *The Scheme of Monogenic Generators II: Local Monogenicity and Twists*. Joint with Sarah Arpin, Sebastian Bozlee, and Hanson Smith. Research in Number Theory (2023). [arXiv link](#). [Published version](#).

DEFORMATION THEORY

- *Deformations of modules through butterflies and gerbes*. Journal of Pure and Applied Algebra (2020). [arXiv link](#). [Published version](#).
- *Deformations of Algebras with 2-Extensions* [arXiv link](#).

TEACHING

Leiden University:

Co-instructor Algebraic Curves: Fall 2022 and Fall 2023, Calculus 1: 2 sections Spring 2023.

University of Utah:

Primary Instructor Linear Algebra: Fall 2021, Spring 2022, Modern Algebra 2 (rings, fields, and modules): Spring 2021, Intro to Number Theory: Fall 2020, Calculus 3: 2 Sections Spring 2020 (transitioned to online teaching due to Covid-19)

University of Colorado Boulder:

Primary Instructor Calculus 2: Fall 2018, Spring 2019; Calculus 1 : Fall 2015, Spring 2016, Spring 2017, Spring 2018

Assistant Teacher Calculus 2 : Fall 2016; Calculus 1 : Spring 2015; Finite Math : Fall 2014; Precalculus : Fall 2017

TEACHING SOFTWARE Endless linear algebra website

Developed python code to write “endless” linear algebra practice problems for students. Put them on <http://www.endlesslinearalgebra.com/> for students to master linear algebra skills outside the classroom.

STUDENTS

Francesco Angeli – Masters’ co-advised with Jorge Vitória

DIVERSITY AND INCLUSION

Outspoken proponent of diversity initiatives.

Supporter of Federico Ardila’s [axioms](#).

Participant in many trainings and activities, such as the interrupting sexism training, the diversity committee “Chats,” fixing the leaky pipeline, etc.

SEMINARS LED	<p>Organizer for:</p> <p>Utah Algebraic Geometry Seminar Co-organized the official Utah Algebraic Geometry Seminar for the 2021-22 year with Alicia Lamarche.</p> <p>Log Geometry Research Seminar with Y.P. Lee and You-Cheng Chou (Fall 2019 Utah)</p> <p>Log Geometry and \mathcal{D}-modules Graduate student reading seminar (Spring 2020 – ended early due to Covid-19)</p> <p>Mirror Symmetry Graduate student seminar (Fall 2019 Utah)</p> <p>∞-Categories reading Jacob Lurie’s <i>Higher Topos Theory</i>. (Spring 2016 CU)</p>
LEADERSHIP INITIATIVES	<p>Founding President of the local chapter of the AMS at CU Boulder. (2016-2018)</p> <p>Co-ran study session series for graduate students to pass the Algebra Prelim (Fall 2014)</p> <p>Teaching weekly high school and undergraduate extracurricular advanced math courses. Associated with Boulder Valley School District Mentor Program. Topics: Topology, Algebra, Differential Geometry, Category Theory, some Analysis. (2015 - 2019)</p> <p>Participated in the “Portal to the Public” Program, coordinated by CU Science Discovery. (Fall 2017)</p>
GRANTS, AWARDS	<p>Partial Postdoctoral Support from NSF RTG Grant #1840190 (Fall 2019 - Spring 2022)</p> <p>Sieglinde Haller Scholarship (Summers 2017, 2018)</p> <p>Pre-Doctoral Fellowship (Fall 2017)</p> <p>Frances C. Stribic Scholarship (Summer 2016)</p> <p>Research Experience for Graduates Summer Research (Summer 2015)</p>
INVITED TALKS	<p><i>Log Intersection theory</i></p> <ul style="list-style-type: none"> • Logarithmic geometry and moduli spaces workshop in Frankfurt, 2023. video. • Groningen University seminar, 2023 • ETH seminar Zürich, 2022 • Utrecht University seminar, 2022 • Leiden University algebra seminar, 2022 <p><i>The scheme of monogenic generators</i></p> <ul style="list-style-type: none"> • DIAMANT symposium, 2023

Log Geometry and the Product Formula

- Young Researcher's Conference on Non-Archimedean and Tropical Geometry 2019. Universität Regensburg, Germany – forty-five minute talk
- MAA General Contributed Paper Session on Algebra, Joint Mathematics Meetings (JMM) 2019. Baltimore, MD – Ten-minute talk
- AMS Special Session in Algebraic Geometry 2018. San Francisco, CA – Twenty-minute talk
- FRAGmeNT 2018, Colorado State University. Fort Collins, CO – Two-hour talk

Deformations of Modules and Butterflies

- Topological Approaches in Algebraic Geometry (TAAAG) Fall 2016. Athens, GA – Ten-minute talk

Other

- *Euler Characteristic in Pictures* – Seminar Spring 2017 – Talk for graduate students in various STEM disciplines
- *Topological André-Quillen Cohomology* – Talbot Summer 2017; CU Boulder Topology Research Seminar – Topological Enhancements of Deformation-Theoretic Tools

REFeree REPORTS manuscripta mathematica, Mathematical Research Letters, Communications in Algebra, Transactions of the American Mathematical Society, and more.

SKILLS Latex Proficiency

Experience with Python, Flask, C++, Javascript, HTML/CSS, etc.

Conversational German, some Dutch and French, minimal Spanish and Japanese.

REFERENCES Available upon request.