Taylor J. Klotz

CONTACT INFORMATION	University of Colorado at Boulder	Taylor.Klotz.23@gmail.com
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RESEARCH INTERESTS

Geometry and symmetry of differential equations, geometric control theory, exterior differential systems and moving frames, differential geometry broadly interpreted.

EDUCATION

Ph.D. in Mathematics at University of Colorado at Boulder, August 2020
-Thesis Title: Geometry of Cascade Feedback Linearizable Control Systems -arXiv preprint arXiv:2102.08521

M.A. in Mathematics from University of Colorado at Boulder, May 2017

B.S. in Applied Mathematics with Physics emphasis from University of Colorado at Colorado Springs, May 2013

PAPERS

J. Clelland, T. Klotz, Clelland, Jeanne N., and Taylor Klotz. "Beltrami fields with nonconstant proportionality factor." *Archive for Rational Mechanics and Analysis* 236, no. 2 (2020): 767-800.

J. Clelland, T. Klotz, P. Vassiliou, "Dynamic Feedback Linearization of Control Systems with Symmetry," submitted -arXiv preprint arXiv:2103.05078.

T.J. Klotz, "Geometry of Cascade Feedback Linearizable Control Systems," submitted.

T. Klotz, "Dynamic and Cascade Static Feedback Linearization for the PVTOL System," in preparation.

G. Dean, T. Klotz, B. Prinari and F. Vitale, "Dark-Dark and Dark-Bright Soliton Interactions in the two-component Defocusing Nonlinear Schrödinger Equation", *Applic. Anal.*, Vol.**92**, pp. 379-397 (2013)

REVIEW ARTICLES

Burby, J. W., and T. J. Klotz. "Slow manifold reduction for plasma science." *Communications in Nonlinear Science and Numerical Simulation* (2020): 105289.

AWARDS

NSF Mathematical Sciences Graduate Student Internship (2019)
    Hosting site: Los Alamos National Laboratory

Graduate School Summer Fellowship (2018)

Adele V. Leonhardy Summer Fellowship (2017)

Dean's List (2013)

Mathematical Competition in Modeling: Meritorious Winner (2010)

CONFERENCE TALKS

Geometry of Cascade Feedback Linearizable Control Systems, Symmetry and Geometry on the Southern Great Plains, Norman OK, Oklahoma University. (2020)

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Aspects of Cascade Feedback Linearization, Joint Mathematics Meetings: Special Session on Geometry of Differential Equations, Denver CO. (2020)

Cascade Feedback Linearization, Midwest Geometry Conference, Iowa State University, Ames, Iowa. (2019)

Dynamic and Cascade Static Feedback Linearization for the P.V.T.O.L. Control System, AMS Fall Central Sectional Meeting: Special Session on Advances on Analytical and Geometric Aspects of Differential Equations, University of Michigan at Ann Arbor. (Fall 2018)

The ultimate brownie: A guide to make the ultimate brownie pan, Mathematical Competition in Modeling Problem, SIAM: Society for Industrial and Applied Mathematics, Front Range Student Conference. (Spring 2013)

Riemannian Geometry and a little Ricci Flow, Math Fest: University of Madison, Wisconsin. (Fall 2012)

Fibonacci leaves: Finding the weight of leaves on a tree and tree Geometry, Mathematical Competition in Modeling Problem, SIAM: Society for Industrial and Applied Mathematics, Front Range Student Conference. (Spring 2012)

Soliton solutions to the defocusing VNLS equation, Rocky Mountain Section Meeting of the Mathematical Association of America, Boulder. (Spring 2011)

Other Talks

Equations of Lie Type, Analysis and Geometry Seminar, University of Colorado at Boulder. (Fall 2017)

Focusing on the Inverse Scattering Transform, Analysis and Geometry Seminar, University of Colorado at Boulder. (Fall 2017)

Looking at Geometry through a Frame, Analysis and Geometry Seminar, University of Colorado at Boulder. (Fall 2016)

(Going With the) Ricci Flow, Slow Pitch Seminar, University of Colorado at Boulder. (Spring 2015)

Partial proof of the uniformization theorem using Ricci Flow, Analysis and Geometry Seminar, University of Colorado at Boulder. (Spring 2014)

Some Basics of Ricci Flow, Analysis and Geometry Seminar, University of Colorado at Boulder. (Fall 2013)

Teaching Experience

At University of Colorado, Boulder

MATH 3430: Ordinary Differential Equations		2020-2021
MATH 1212: Data and Models	Fall	2020
Calculus III Instructor		2017-2020
Calculus II Instructor	Fall	2016
Calculus II Teaching Assistant	Spring	2016
Calculus I Instructor		2014–2015
Calculus I Teaching Assistant	Spring	2014
Finite Business Mathematics Teaching Assistant	Fall	2013

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At University of Colorado, Colorado Springs

Introduction to Differential Equations Supplemental Instructor		2010–2013
Higher Geometry Problem Session Leader		2010–2013
Calculus II Teaching Assistant	Fall	2010
Pre-Calculus Teaching Assistant	Summer	2011
Excel Center for Mathematics Tutor Tier 4		2011–2013

RELEVANT SKILLS

Programming Languages: Maple, LaTeX, Mathematica, MATLAB, Python