

CURRICULUM VITAE

VOLODYMYR V. KOVALCHUK

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My research interests cover conformal field theory, representation theory, and machine learning. I deeply value education, and have commitment to facilitate mathematical and scientific development through teaching, seminars, and more. Beyond mathematics, I enjoy exploring physics, economics, philosophy, and art, valuing each for their contribution to knowledge, expression, and beauty of human spirit. In my leisure time, I find joy in practicing martial arts, running, and painting.

EDUCATION

Diploma, <i>Beverly High School</i>	2015
B.S. in Mathematics, <i>Salem State University</i>	2017
M.S. in Mathematics, <i>University of Denver</i>	2021
Ph. D. in Mathematics, <i>University of Denver</i>	2024

WORK EXPERIENCE

Tutor, <i>Mathnasium</i>	2016-2017
Tutor, <i>Salem State University</i> ,	2017-2018
Teaching assistant, <i>Salem State University</i>	2017-2018
Tutor, <i>Math Center at University of Denver</i>	2018-2024
Graduate teaching assistant, <i>University of Denver</i>	2018-2024
Instructor, <i>University of Denver</i>	2020- 2024
Investment analyst, <i>Artisan Partners</i>	Sep 2024 - Dec 2024
Post-doctoral scholar, <i>University of Erlangen-Nuremberg</i>	May 2025 - present

SKILLS

Teaching, communicating complex concepts to diverse audiences.

Coding experience with Mathematica, Python, MATLAB, R and CSS.

Workin with data using mainstream machine learning techniques.

Technical writing using \LaTeX , Markdown and HTML.

TEACHING

MATH 1070, College Algebra and Trigonometry	Fall 2020
MATH 1952, Calculus II	Winter 2021
MATH 1941, Calculus I Workshop	Fall 2023

AWARDS

Pi Mu Epsilon Distinction, awarded by Mathematics Department at <i>Salem State University</i> ,	May 2017
Graduate Teaching Award, awarded by Mathematic Department at <i>University of Denver</i> ,	May 2022
Postdoctoral Fellowship, awarded by Alexander von Humboldt	Summer 2025

TALKS

2 new universal objects , BIRS	Summer 2025
On the universal 2-parameter VOA of type $\mathcal{W}(1^3, 2, 3^3, 4, \dots)$, Rocky Mountain Representation Theory Seminar ,	Fall 2023
W(2,N) problem , AMS Special Session on Mathematical Aspects of Conformal Field Theory , January 2020	
Universal two-parameters algebras beyond \mathcal{W}^∞ , AMS Special Session on Some Modern Developments in the Theory of Vertex Algebras , May 2022	

PUBLICATIONS AND PREPRINTS

Arias A. and Kovalchuk V., A remark on geodesics in the Banach-Mazur distance , Proc. Amer. Math. Soc. 151, no. 9, 3959-3965, 2023
Creutzig T., Kovalchuk V. and Linshaw R., Generalized parafermions of orthogonal type , J. Algebra 593, 178-192, 2022
Kovalchuk V., Building blocks for \mathcal{W}-algebras of classical types , PhD. thesis, University of Denver, 2024
Creutzig T., Kovalchuk V. and Linshaw A., Universal objects beyond \mathcal{W}_∞ and \mathcal{W}_∞^{ev} , 2024.
Kovalchuk V., and Qi F., First-order deformations of freely generated vertex algebras , 2024
Fasquel J., Kovalchuk V., and Nakatsuka S., Virasoro reductions and inverse Hamiltonian reductions for \mathcal{W}-algebras , 2025
Creutzig T., Fasquel J., Kovalchuk V., Linshaw A., and Nakatsuka S., Minimal \mathcal{W}-algebras of \mathfrak{so}_N at level -1 , 2025
Creutzig T., Kovalchuk V. and Linshaw A., New universal vertex algebras as glueings of the basic ones , 2025
Creutzig T., Kovalchuk V., Linshaw A., Song A., and Suh U., $\mathcal{N} = 2$ superconformal \mathcal{W}_∞ , 2025

MENTORING

[Directed reading program](#) on *Reinforcement learning* with Abenezer Woldeesenbet, *University of Denver* 2023