

# NICHOLAS D. KOSTIN

Website: <https://nkostin.com>  
Email: [nkostin@mines.edu](mailto:nkostin@mines.edu)  
GitHub: <https://github.com/nkostin4>  
Mobile: +1 719-271-9108

## Education

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Colorado School of Mines  
Major: **Engineering Physics**  
Minor: **Computational and Applied Mathematics**

Golden, CO  
BS May 2022

Major GPA: **3.973** / Cumulative GPA: **3.978**

### Relevant coursework:

Mathematical Physics (graduate level) • Advanced Electromagnetism & Optics • Intermediate Mechanics  
• Modern (Quantum) Physics I & II • Linear Algebra • Partial Differential Equations • Thermal  
Physics • Real Analysis • Scientific Computing • Foundation of Advanced Mathematics (proofs)

## Work Experience

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### Head Teaching Assistant

*Physics II — Electromagnetism and Optics*

Golden, CO  
January 2019 — May 2021

- Contributed to a program that increased the pass rate of the course by 40%
- Facilitated group problem-solving and lab activities; held frequent office hours and homework help sessions
- Created exam rubrics for other TAs; hosted exam reviews with live audiences over 300 students
- Designed and compiled lecture slides that became integrated into the standard course curriculum

### SAGE Affordable Tutoring

*Instructor*

Colorado Springs, CO  
February 2018 — December 2019

- Provide individual and small-group tutoring in science and mathematics; help students set and achieve high academic goals
- Sharpen test-taking strategies to maximize student potential, especially on AP exams
- Regularly communicate with parents to discuss student growth and implement viable study plans

## Technical Skills

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### Scientific/Numerical Computing:

Python, extensive knowledge of `numpy`, `scipy` and `manim` libraries. • Mathematica • MATLAB • R

### General-Purpose Programming:

C • C++ • POSIX-compliant Shell Scripting

### Markup Languages & Vector Graphics:

Troff / Groff • L<sup>A</sup>T<sub>E</sub>X, proficient with TikZ and PGF • HTML / CSS • Asymptote • R Markdown

### Operating Systems:

Desktop: Arch Linux, NixOS, Gentoo, Void Linux • Server: Debian, Ubuntu, OpenBSD

### Other:

Technical Writing • Public Speaking • Presentation / Communication • Fluent in Russian

## Projects

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### Fractional Charge Physics in Two-Dimensional Systems

July 2020 — May 2021

Advisor: *Dr. Mark Lusk*

- Provided simulation tools for modeling fractional charge statistics and the behavior of anyons in lattices, thereby forming a foundation for quantum computing
- Wrote Mathematica code to elucidate fractional charge in polyacetylene and graphene; extended computational modeling to consider new vortex dynamics
- Presented results of research to panel of physics faculty