Nicholas D. Kostin

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Education

Colorado School of Mines — Golden, CO
Major: **Engineering Physics** — BS May 2022
Minor: **Computational and Applied Mathematics**

Major GPA: **4.00** / Cumulative GPA: **4.00**

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

Head Teaching Assistant — Golden, CO
Physics II — Electromagnetism and Optics — 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 — Colorado Springs, CO
Instructor — 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

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 • LaTeX, proficient with Ti*k*Z 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

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