

# Alexander Rodriguez

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🌐 [alro15260](#)

Professional Website

## Education

August 2017– Present **Bachelor of Arts in Astrophysics & Mathematics**, *University of Colorado Boulder*,  
GPA in Upper Division MATH, PHYS, & ASTR: 3.6/4.0.

## Positions

January 2019– Present **Research Assistant**, JOINT INSTITUTE FOR LABORATORY ASTROPHYSICS (JILA),  
Boulder CO, Supervised by Dr. Aleksey Genozov and Dr. Ann-Marie Madigan.

- Used CU's supercomputing resources to run N-body simulations of galactic nuclear disks in galaxy mergers
- Routinely managed large data sets for their analysis in Python
- Performed a novel study of gravitational perturbation theory of stellar orbits (results summarized in publication below)

## Honors

AAS Division of Dynamical Astronomy (DDA) Registration Grant  
Alpha Kappa-Alpha Kappa (Acacia Service Fraternity) Scholarship of Highest Merit  
Dean's List  
Chancellor Achievement Scholarship  
Arts and Sciences Honors Program Admit (since 2017)

## Publications

Galactic Merger Implications for Eccentric Nuclear Disks  
**Rodriguez A.**, Genozov A., & Madigan A.-M. [arXiv:2010.15957](#)

## Contributed Talks

[AAS Division of Dynamical Astronomy \(DDA\) 51st Meeting, Online](#)

## Teaching

Fall 2018 MATH2400 (*Calculus 3*)  
Fall 2018 PHYS1110 (*Calculus-based Physics 1*)  
Spring 2019 MATH1300 (*Calculus 1*)

Tutor at the Student Academic Success Center (SASC) at the University of Colorado Boulder for underprivileged and poorly represented students.

## Graduate/Advanced Coursework

Fall 2019 MATH5470 (*Partial Differential Equations*)  
[With Project and Lecture on Green's Functions and Potentials](#)  
Fall 2020 MATH4230 (*Differential Geometry*)  
Fall 2020 PHYS5030 (*Mathematical Physics I*)

Spring 2021    PHYS5040 (*Mathematical Physics II*)  
(expected)

Spring 2021    PHYS5770 (*General Relativity*)  
(expected)

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## Programming Languages

Experienced: Python, Bash, Latex

Familiar: Mathematica, Maple, HTML, Lean

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## Projects & Organizations

Fall 2018    Designed leapfrog N-body integrator with sourcecode available at [GitHub alro15260](#)

Fall 2018    M77 Supernova Analysis Project with 24" telescopes at CU Boulder

Spring 2019    Statistical Analysis of Stars in Galactic Nuclei Project

Fall 2019    Academic Chair of Alpha Kappa-A Alpha Kappa (Acacia Service Fraternity)