Alexander Rodriguez

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alro15260

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.

- Used CU's supercomputing resources and N-body simulations to study galactic nuclear disks in galaxy mergers
- First work to study an eccentric nuclear disk system with a perturbing supermassive black hole
- Found in idealized systems the disk stars could be ~4 times more aligned than in an isolated system. This and other dynamically interesting effects are summarized in the 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

Rodriguez A.,Generozov A., & Madigan A-M, Galactic Merger Implications for Eccentric Nuclear Disks (in prep.)

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 (expected) PHYS5040 *(Mathematical Physics II)*

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

Programming Languages

Experienced: Python, Bash, Latex

Familiar: Mathematica, Maple, HTML, IRAF, Lean, C++

Projects & Organizations

Fall 2018 Designed leapfrog N-body integrator with sourcecode available at 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-Alpha Kappa (Acacia Service Fraternity)