

David Michael Hernandez

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Yale University Department of Astronomy
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Professional Experience

- **Yale University** 09/2022–
CycloAstro Postdoctoral Fellow
- **Harvard–Smithsonian Center for Astrophysics** 10/2018–02/2019; 09/2019–08/2022
MPC Fellow and ITC Associate
- **RIKEN Center for Computational Science** 03/2019–08/2019
Postdoctoral Fellow
- **Massachusetts Institute of Technology** 06/2018 – 08/2018
Postdoctoral Fellow

Education

- **Massachusetts Institute of Technology** 2018
PhD in Physics
- **University of Arizona**
B.S. in Physics and B.S. in Astronomy with Honors; Minors in Math, Music, Spanish

Research interests

- Theoretical and computational astrophysics; applications of the mathematical N-body problem; ordinary differential equations; chaotic dynamical systems; control of numerical roundoff and truncation error; geometric numerical integration of differential equations
- Languages: C, MATLAB, Python, Julia, Fortran, Latex, Bash

Selected Awards

- Shah Zion Fellowship (MIT), NSF Graduate Research Fellowship, Lyons fellowship (MIT), US Goldwater Scholarship, Flinn Scholarship

Referee Service

- MNRAS, Astronomy and Astrophysics, Celestial Mechanics and Dynamical Astronomy, Computer Physics Communications, Astrophysical Journal Supplement Series, Fractal and Fractional, UK Science and Technology Facilities Council grant review committee, University of Maryland job promotion committee, European Physical Journal C

Public Code Projects

- **TRACE**
2024, with Tiger Lu and Hanno Rein.
https://github.com/tigerchenlu98/rebound/tree/TRACE_adaptive_TS
- **NbodyGradient**
2021, with Eric Agol. github.com/ericagol/NbodyGradient
- **Encke_HH**
2021, with Matthew Holman. github.com/matthewholman/rebound
- **ReboundX**
2020, with Dan Tamayo and others. github.com/dtamayo/reboundx
- **Mercurius**
2019, with Hanno Rein and others. github.com/hannorein/rebound

- Code from Hernandez and Dehnen (2017)
2017, with Walter Dehnen. Available on request.
- Triton
2017, with Walter Dehnen. Available on request.
- Universal.c
2015, with Jack Wisdom. github.com/matthewholman/rebound