

Ann-Marie Madigan

Dept. of Astrophysical and Planetary Sciences & JILA
University of Colorado, Boulder
Boulder, CO 80309

(303) 492 0389
annmarie.madigan@colorado.edu
<https://jila.colorado.edu/madigan>

Research Interests

My research focuses on the gravitational dynamics of individually small, but collectively massive, groups of bodies. It spans both astrophysical and planetary sciences and includes the dynamics of stars and gas around supermassive black holes, the collective gravity of minor planets in the outer solar system and the dynamics of galactic dark matter.

Employment

2016 - present Assistant Professor & JILA Fellow, CU Boulder
2012 - 2016 NASA Einstein & Theoretical Astrophysics Center (TAC) Postdoctoral Fellow,
UC Berkeley

Education

2012 *Ph.D., Astronomy*
Leiden University, The Netherlands
2007 *M.Sc., Astronomy*
Leiden University, The Netherlands
2004 *B.Sc., Honors Physics & Astronomy*
National University of Ireland, Galway

Awards & Grants

2021 *American Astronomical Society (AAS) Vera Rubin Early Career Prize*
Outstanding Faculty Mentor Award (CU Boulder)
Increasing Diversity in STEM at CU Boulder, Packard Foundation
\$150k grant (co-PI)
2018 *Packard Fellowship for Science and Engineering*
\$875k grant (PI)
2016 *NASA Astrophysics Theory Program*
\$640k grant (PI)
NASA Solar System Workings
\$600k grant (PI)

2015 *NASA Pleiades*
7 million CPU hr supercomputing grant (PI)

2014 *NSF XSEDE*
2.5 million CPU hr supercomputing grant (co-PI)

2012 *NASA Einstein Postdoctoral Fellowship* (3 years)
TAC Postdoctoral Fellowship (UC Berkeley, 1 year)

2010 *Martin & Beate Block Award*
Promising young physicist, Aspen Center for Physics

2011 *NWO TopTalent Fellowship*
Independent Ph.D. research grant, The Netherlands (4 years)

Invited Colloquia* & Seminars

2021 *University of Edinburgh (Dec. 2021)
*University of Washington
*Pontificia Universidad Católica de Chile

2020 *Caltech
*University of Chicago

2019 *Harvard University

2018 *McGill University
*University of Michigan
*Michigan State University
*University of Kentucky
*University of Florida
Theoretical Astrophysics Seminar, University of California, Berkeley
University of Colorado Center for Astrobiology Seminar

2017 *Pennsylvania State University
Theoretical Astrophysics inc. Relativity & Cosmology (TAPIR) seminar, Caltech

2016 *University of Amsterdam
*Leiden University
*Nijmegen University
*University of Arizona
*University of California, Berkeley
*University of Colorado, Boulder
Canadian Institute for Theoretical Astrophysics (CITA)

2015 *Institute for Astronomy, Hawaii
*University of California, Los Angeles

2014 IMPS seminar, UC Santa Cruz
*University of California, Davis

- 2013 Nova Galactic Center day, Amsterdam, The Netherlands
- 2012 *University of California, Santa Cruz
*University of Birmingham, UK
- 2011 Swinburne University of Technology, Australia

Invited Conference Talks

- 2018 “Open questions in Astrophysics”, Niels Bohr Institute, Denmark
- 2017 “Tidal Disruption Events: Piercing the Sphere of Influence”, Cambridge, UK
- 2016 “Fellows at the Frontiers”, Northwestern University
“Dynamics & Accretion at the Galactic Center”, Aspen Center for Physics
- 2015 AAS Division on Dynamical Astronomy, Caltech
- 2014 “Stellar N -body Dynamics”, Italy
- 2013 “Black Hole Fingerprints”, Snowpac conference, Utah
- 2012 Marcel-Grossman Meeting on General Relativity, Sweden
- 2009 Astronomical Science Group of Ireland Conference

Public Outreach

- 2021 Invited Talk for Cork Astronomy Club, Ireland (Nov. 2021)
Outreach talk at Pretty Brainsy, non-profit organization for girls
Outreach talk at Eagle-Rock High School, Los Angeles
- 2020 Panelist for “Women of JILA - Speaker Series”
- 2018 TEDx Boulder talk “*Black Hole Sun*”
Keynote speaker for Denver Astronomical Society
Invited talk for Students for the Exploration and Development of Space
Astronomy liaison for the Logan School for Creative Learning (- present)
- 2017 Astronomy on Tap speaker, Boulder
University of Colorado astronomy club speaker
- 2016 Invited public talk at SETI institute
“*The bizarre orbits of minor planets beyond Neptune*”
- 2014 Invited talk for seminar series “*What Physicists Do*”, Sonoma State University
- 2013 *Dinner with a scientist* outreach event for Oakland school district
- 2011 Invited outreach talks:
Technical University Eindhoven, The Netherlands
De Leidsche Flesch, Leiden, The Netherlands
Careers in science, St. Louis High School, Ireland

CU Boulder Teaching

Spring 2021	ASTR-2030: Black Holes Undergraduate non-majors course, 3 credits
Fall 2020	ASTR-6000: Spiral Arm Formation and Dynamics Graduate seminar, 1 credit
Spring 2018, 2019	ASTR-1030: Accelerated Introduction to Astronomy Undergraduate majors course, 4 credits
Fall 2016, 2018	ASTR-5820: Origin & Evolution of Planetary Systems Graduate course, 3 credits
Fall 2017, 2020	ASTR-3710: Formation & Dynamics of Planetary Systems Undergraduate majors course, 3 credits

Students and postdocs advised at CU Boulder

Graduate Students	Tatsuya Akiba	2020 - present
	Alexander Zderic	2017 - present
	Heather Wernke	2017 - 2021
Postdocs	Angela Collier	2019 - present
	Maria Tiongco	2019 - present
	Aleksey Generozov	2018 - 2021
Undergraduates	Alexandra Gladkova	2021 - present
	Karin Roley	2021 - present
	Allie Christensen	2020 - present
	Alexander Rodriguez	2019 - present
	Emma Lieb	2020 - 2021
	Gwendalynn Roebke	2018 - 2021
	Hayden Foote	2018 - 2020
	Jacob Moss	2018 - 2019
	Jacob Fleisig	2017 - 2019
	Sean Moss	2017 - 2018
Aidan Jared	2017 - 2018	

University Service at CU Boulder

2021	Member of College of Arts and Sciences Dean Search Advisory Committee Faculty representative to APS graduate student body Member of APS awards committee Co-organizer and host of JILA's Richard Nelson Thomas Award celebration
2020	Member of APS Executive Committee Co-chair of Representation, Recruitment & Retention Department Action Team Panelist for Research and Innovation Office (RIO) Webinar

- 2019 Member of Packard Fellowship internal competition review committee (- present)
Member of graduate admissions committee
- 2018 Member of faculty search committee for time-domain hire
Chair of APS social committee
Member of faculty search set-up committee
Organizer of ‘Women in Astro’ lunches (- present)
Organizer of ‘Under-Represented Minorities in Astro’ lunches (- present)
- 2017 Honors Thesis Representative for the APS department (- present)
Member of faculty search committee for planetary science hire
Member of graduate admissions committee
Member of colloquium committee
- 2016 Founder of undergraduate research opportunities symposium (- present)
Organizer of weekly APS journal club (- present)

External Service

- 2021 Science advisor for Heising-Simons Foundation
Mentor in AAS Dynamical Division of Astronomy (DDA) program
- 2020 NSF Astronomy and Astrophysics Research Grants (AAG) panel member
- 2019 SOC member, “New Horizons in Galactic Center Astronomy & Beyond”, Japan
- 2018 LOC member, AAS Dynamical Division of Astronomy (DDA) meeting, Boulder
- 2017 NASA Astrophysics Theory Program (ATP) panel member
AAS Dynamical Division of Astronomy committee member (- 2019)
Session chair at AAS Dynamical Division of Astronomy Conference, London
Reviewer for The Israel Science Foundation (Joint NSFC-ISF Research Grant)
- 2015 Reviewer for NASA Earth and Space Science Fellowship (NESSF)
- 2014 Hubble Space Telescope allocation committee, Cycle 22 panel member

CU Boulder Examination Committees

[Undergraduate Students](#) and [Graduate Students](#) I advised

- | | | |
|------|----------------------------------|------------------------------|
| 2021 | Alexander Zderic | APS Dissertation (Nov. 2021) |
| | Heather Wernke | APS Dissertation |
| | Jessica Libby-Roberts | APS Dissertation |
| | Aaron Stemo | APS Dissertation |
| | Tatsuya Akiba | APS Comprehensive Exam |
| | Hannalore Gerling-Dunsmore | APS Comprehensive Exam |
| | Joshua Hibbard | APS Comprehensive Exam |

	Kya Sorli	APS Comprehensive Exam
	Aimee Schechter	APS Comprehensive Exam
	Amanda Hampton	Applied Math Comprehensive Exam
	Gwendalynn Roebke	General honors thesis
	Alexander Rodriguez	APS undergraduate honors thesis
	Allie Christensen	APS undergraduate honors thesis
	Brenna Royersmith	APS undergraduate honors thesis
	Anna Estes	APS undergraduate honors thesis
	Ferris Bosworth	APS undergraduate honors thesis
	Madeline Pettine	APS undergraduate honors thesis
	Zhiyu Yao	APS undergraduate honors thesis
2020	Daniel Segal	APS Comprehensive Exam
	Hayden Foote	APS undergraduate honors thesis
	Anna Pusack	APS undergraduate honors thesis
	Allyson Leffler	APS undergraduate honors thesis
	John Faulhaber	APS undergraduate honors thesis
	Ryder Strauss	APS undergraduate honors thesis
	Jenna Kishinevsky	Physics undergraduate honors thesis
2019	Zach Milby	APS undergraduate honors thesis
	Dylan Gatlin	APS undergraduate honors thesis
	Maya Yanez	APS undergraduate honors thesis
	Claire Lamman	APS undergraduate honors thesis
	Carlos Eytan Gary Bicas	APS undergraduate honors thesis
	Evan Tucker	Geology undergraduate honors thesis
2018	Erika Zetterlund	APS Dissertation
	Heather Wernke	APS Comprehensive Exam
	Alexander Zderic	APS Comprehensive Exam
	Ryan Diaz-Perez	APS Comprehensive Exam
	Hayley Roberts	APS Comprehensive Exam
	Daniel Brack	Aerospace Engineering Comprehensive Exam
	Jacob Fleisig	APS undergraduate honors thesis
	Amanda Alexander	APS undergraduate honors thesis
	Cami Nasr	APS undergraduate honors thesis
	Ian Cadenhead	APS undergraduate honors thesis
	Odysseus Quarles	APS undergraduate honors thesis
	Parker Hinton	APS undergraduate honors thesis
	Rachel McClure	APS undergraduate honors thesis
2017	Keri Hoadley	APS Dissertation
	Morgan Rehnberg	APS Dissertation
	Aaron Stemo	APS Comprehensive Exam
	Nicole Arulanantham	APS Comprehensive Exam