

Michael S. Petersen

Institute for Astronomy, University of Edinburgh, Royal Observatory
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- RESEARCH** Design, implement, execute, and analyse precision numerical models to understand dynamical evolution in disk galaxies and their halo environs.
- POSITION** **Postdoctoral Research Associate**, working with Jorge Peñarrubia. 2019-
- EDUCATION** **Doctor of Philosophy**, Astronomy 2019
The non-linear dynamics of barred galaxy evolution in Λ CDM
Advisors: Martin D. Weinberg, Neal Katz
Mary Dailey Irvine Grant 2016, 2017, 2018
Bachelor of Arts, Astronomy & Physics, Music 2010
Colgate University, Hamilton, NY
Astronomy & Physics Honors, Core Distinction
- PUBLICATIONS** Refereed Publications (Citations as of June 2020)
Petersen, M. S. & Peñarrubia, J. *Reflex motion in the Milky Way stellar halo resulting from the Large Magellanic Cloud infall*, 2020, MNRASL, 494:11. (6 citations)
Petersen, M. S., Weinberg, M. D., and Katz, N. *Using torque to understand barred galaxy models*, 2019, MNRAS, 490:3616. (2 citations)
Petersen, M. S., Katz, N. , & Weinberg, M.D. *The Dynamical Response of Dark Matter to Galaxy Evolution Affects Direct-Detection Experiments*, Phys Rev D, 2016. Figure 4 was featured as part of the journal's 'Kaleidoscope'. (6 citations)
Petersen, M. S., Weinberg, M. D., and Katz, N. *Dark matter trapping by stellar bars: the shadow bar* 2016 MNRAS, 463:1952–1967. (11 citations)
- Publications In Review
Petersen, M. S. & Peñarrubia, J. *Detection of the Milky Way reflex motion induced by the Large Magellanic Cloud infall*
Petersen, M. S., Weinberg, M. D., and Katz, N. *Using commensurabilities and orbit structure to understand barred galaxy evolution*, arXiv e-prints
Petersen, M. S., Weinberg, M. D., and Katz, N. *Using harmonic decomposition to understand barred galaxy evolution*, arXiv e-prints

ADVISING

Senior Honours Research Advisor

2019-

Designed and advised three research projects for undergraduate students at the University of Edinburgh.

Research Advisor

2020

Designed, sought funding for, and advised two research projects for undergraduate students at the University of Edinburgh.

SERVICE

ROE Seminar Organiser

2019-

Responsible for selection of speakers and organising delivery of talks for the Royal Observatory. Includes remote organisation and hosting during work-from-home period.

Local Universe Reading Group Organiser

2019-

Responsible for programming and hosting a roughly dozen-person reading group covering multiple research teams at the ROE.

TEACHING

Five College Astronomy Teaching Assistant

2014-2018

Assisted Professor James Lowenthal, Dr. Anne Jaskot, and Dr. Kim Ward-Duong in Observational Techniques I/II, a two-semester observing course involving a yearly observational component at Kitt Peak National Observatory. University of Massachusetts Distinguished Teaching Award finalist.

Continuing Education Head Instructor

2013-2018

Developed a two-week intensive continuing education class for the University of Massachusetts, then reshaped the class into a program involving many graduate students.

PROFESSIONAL LINKS

Research Webpage <https://michael-petersen.github.io>

Github Code Repository <https://github.com/michael-petersen>

REFERENCES

Jorge Peñarrubia

Postdoctoral Research Associate advisor.

Martin D. Weinberg

Primary dissertation advisor.

Neal Katz

Co-dissertation advisor.